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Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.*—No. XCVIII.

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SECTION V.

ON THE WATER-TIGHT LINING OF SHAFTS.

The lining of rectangular shafts by means of solid wooden cribbing has been somewhat extensively used in the neighbourhood of Hisleben. The engine-shaft at Eisleben is timbered in this manner over a length of 22 ft. The inside dimensions of the shaft are 12 ft. long by 6 ft. broad; where the water-tight lining had to be inserted the excavation was made 16 ft. 6 ins. long by 10 ft. wide. After a suitable ledge has been dressed in a water-tight rock, the wedging crib, which is made of oak beams 12 ins. square, is laid in position. The corner joints are made by scarfing the various pieces together, the shorter pieces being notched also 2 ins. into the longer. The partition of the frame is effected by placing two bearers, each 8 ins. broad and 12 ins. deep, across from side to side. On the upper surface of the wedging cribs are two grooves, the one 3 ins. from the front edge, and the other 3 ins. from the back edge of the timbers forming the crib. These grooves are for the insertion of a tongue, 2 ins. deep and 1½ in. broad. Close behind the crib a board, 3 ins. thick and 12 ins. deep, is placed, and the space between the board and the sides of the shaft, amounting to from 10 ins. to 12 ins., is tightly packed with well cleaned moss. By means of temporary wedges, inserted between the board and the wedging crib, the former is pushed so far back against the sides of the shaft that the moss only occupies a space of from 1½ in. to 2 ins., leaving a space of from 8 ins. to 10 ins. between the crib and the board. The temporary wedges are gradually and succes-ively removed from this space, with the immediate insertion of the so called wedging blocks of poplar wood (*i.e.*, each wedging block is inserted as soon as there is sufficient space). The wedging proper now begins, the aim of which is to close all the joints, either between the wedging blocks themselves or between the wedging blocks and the wedging crib, or the moss board. To effect this two rows of wedges (first of pine wood and afterwards of oak) are driven in all round parallel to the sides of the wedging blocks. The crib, &c., are now generally so tightly pressed that any opening made by the chisel for the insertion of a wedge closes immediately on the withdrawal of the chisel; hence it is that the last row of wedges (which are usually driven in in the centre of the wedging blocks) are of iron. The backing of moss is now so very tightly compressed that it does not occupy a space much above 1 in. thick.

After the wedging crib has thus been properly wedged in position the solid cribs are laid upon each other. We have just mentioned that the upper surface of the wedging crib is provided with two grooves. The lining cribs, which are 8 ins. broad, and 12 ins. to 16 ins. deep, are made of oak, and have a similar groove in the centre on both the upper and under surface. In addition to these the back upper and lower corners are cut so as to form a half groove of the same dimensions as the others. Before laying on the first lining crib the upper surface of the wedging crib is covered with stripes of tarred linen, after which the tongue is driven down into the groove, and the crib is again covered with a strip of linen.

The first lining crib is now driven down on the tongue, and the joint at the back (which begins with a groove, owing to the above mentioned arrangement) is covered with a lath of wood fitting into the groove, and which wedges the back edges of the tarred linen tight against the cribs. The lath is nailed on at the back. By the means of a row of short round 5-inch wood the cribs are strutted tight against the solid side of the rock. The space behind the back of the crib, from 12 ins. to 18 ins. wide, is filled by stamping down moistened clay. In this manner the successive lining cribs are built up. The vertical (corner) joints are similarly made tight by inserting tarred linen, the joints are covered by long strips of tarred linen held tight by means of triangular (right angled) laths of wood nailed in the corners. In the Erdmann shaft, which was lined in a water-tight manner over a length of 20 yards, the groove and tongue between two succesive cribs was left out, the surfaces being simply covered with a strip of tarred linen; the cribs being connected with each other by means of two dowels in each of the four sides of the crib. At the Wassermann shaft the wedging blocks were of half the thickness, and two rows (one above the other) were used. By this means the bellying of the sides of the shaft was not avoided, and the joint was not water-tight. A second wedging crib was, therefore, laid 6 ft. 6 ins. deeper than the first, and wedged in the usual manner. The joints between the lining cribs were made tight by laying a strip of tarred flannel or linen between the cribs, and covering the back of the joint with tarred linen. The space behind the cribs was built up with concrete to within 1 in. to 1½ in. of the back side of the rock. Into this space cement is poured, amongst which pieces of broken brick are inserted. The lining can be carried in this manner up to within about 5 ins. or 6 ins. of the under side of the wedging crib. The space thus left is filled up with wedging blocks, 5 ins. or 6 ins. deep, and 15 ins. broad, which are wedged tight by means of wedges in the usual manner.

At the Eliza shaft of the Guley Colliery (Von Dechen, in Karsten's Archives), near Aix-la-Chapelle, the rectangular shaft is lined in a water-tight manner over a length of 20 yards. The necessity for a water-tight lining arose from the fact of having to pass through ground which had become fissured and broken, owing to the working of some of the upper seams. The following is the manner in which the lining was carried out. After passing below the worked out seams a bed of schist, unbroken and water-tight, is met with, in which the bed or ledge for the wedging crib is dressed. The wedging crib, which is wedged in the usual manner, rests upon a bed of moss; the lining cribs, which are all of the same size as the wedging crib, are simply laid on each other, being fixed tightly in position by means of a couple of wedges at each corner. The timbers of each crib abut against each other with vertical diagonal faces. The clear space behind the timbering is filled up with concrete. The lining cribs are thus carried up to the full height—20 yards—of the water-tight lining, without the addition of a second wedging crib. When the lining had been carried up this height the horizontal joints were wedged water-tight by means of wedges made of beech wood, the wedges being made to project slightly into each other. In consequence of cross bearers (which were inserted during the insertion of the lining cribs) covering a portion of the horizontal joints, these could not be got at to wedge, and in this portion the lining was found to be not water-tight. In order to remedy this defect small holes were bored on both sides of the cross bearers, in the cribs at the joints, so that one half the hole was in the upper and one half in the lower crib. The holes were bored so as to meet each other. Into these holes wooden plugs, which were covered with moss, were inserted, and in this manner this portion of the joints was made water-tight.

In the neighbourhood of Liege, Belgium (Ponson. Traite, p. 411), where the pits are usually rectangular in section, the object of water-tight lining is chiefly to keep back the water in the old workings, and the water-tight lining of the shafts is only partial. The timbers of the cribs are mortised into each other at the ends, and the front or inside edges of the timbers forming the crib are bevelled off to a depth of about 1 in., so that when two cribs are laid upon each other the inside or front end of the horizontal joints terminate in a ⋖ groove. A layer of moss is placed between each crib. When the carvelage has reached the upper bed of water-tight strata a flat board is placed upon each side of the top crib, and upon this moss is packed tightly between the boards and the under side of the dressed portion of the water-tight rock. Wedges are driven in horizontally between the board and the crib, being replaced by blocks when the moss has been sufficiently compressed. The blocks are finished wedging by means of wedges made of harder wood. This mode of wedging is exactly analogous to that we have previously described for wedging cribs. The horizontal joints are made water-tight by driving in well cleaned moss, the moss is prevented from being pushed out by the pressure of the water by means of small plates of sheet-iron (provided with small lugs, or ears, bent at right angles). By driving the ears into the cribs just above and below the joints, the plates are fastened over the horizontal joints.

The method of lining shafts in a water-tight manner by means of solid cribbing is most successful when applied to shafts of circular section and comparatively small diameter In England, especially in the North, where circular pits are almost universal, this method was formerly much in vogue. In Belgium and the North of France the rectangular section has, since 1820, given place to a circular or polygonal section, the number of the sides in the polygon varying from 6 to 20, 10 being, however, the most general number. The diameter of the shafts in the North of England varied usually between 10 ft. and 12 ft.; in the Mons Basin and the Anzin district in the North of France the inscribed circle enclosed by the polygonal pits was usually 10 ft. in diameter; in the Mosel department 13 ft. diameter is the general size. This mode of lining consists essentially of two principal kinds of timbering, or cribs. The main part of the lining consists of solid lining cribs, the other requiring most care and attention of the wedging cribs.

After the sinking has reached water-tight ground the bed for the wedging crib is carefully dressed. This bed should be smooth and horizontal. Sometimes the influx of water is so great as to interfere with the proper dressing of the bed or ledge, in which case the bed is made to form two ledges. On the lower of these a crib (in Belgium called "plates trousses," in France "trousses colletées") is placed, and merely wedged tight in position, as it is intended solely to form a bed for the wedging crib. Where a great pressure of water is expected several wedging cribs may be placed directly over each other, or have bearing cribs inserted between two or three wedging cribs. The wedging crib is formed of several segments, which fit into each other with tongue and groove. Oak is generally used for the cribs, in the neighbourhood of Liege, beech is more usual. The wedging crib is carefully levelled in position, and in the space behind the wedging crib, which should not exceed 3 in. to 4 in., planks of pine wood (called in France "lambourdes") about 1½ in. thick, and of the height and length of the segments forming the crib, are placed, and held tight by wedges between them and the sides; the space between the "lambourdes" is tightly packed with well cleaned moss as the wedges are removed.

When the space all round between the "lambourdes" and the sides of the rock has thus been tightly filled the wedging commences. Several flat wedges are driven down between the "lambourdes" and the wedging crib until it becomes possible to insert a row of permanent wedges with the thicker end downwards. The dimensions of these wedges are 10½ in. long, 1⅝ in. broad, 7-16ths in. thick at one end, and 1 in. thick at the other end. In the open space left between the thinner ends of these wedges and the wedging crib, or the "lambourdes," similar wedges with the thinner end downwards are driven in all round. The projecting ends of the wedges are cut off, and the surface made level.

After this the actual water-tight wedging commences. For this purpose three sizes of pointed wedges are used. The first two sizes, respectively 8½ in. and 7 in. long, ⅞ in. and 9-16ths in. square at the upper end, tapering to a point at the lower end, are made of willow wood. The third size is made of oak, and are 5 in. long, 9-16ths in. square at the upper end, and taper to a point at the lower end. The wedges are driven with the thin end downward into the flat wedges, or the joints between the latter and the crib or the "lambourdes," the opening for which is first made with a chisel. Whenever any of the wedges already inserted become loosened by the insertion of others they are withdrawn and reversed, the thicker end being placed downwards. The larger-sized wedges are driven in first. By this means the moss is pressed into all the cavities and irregularities of the rock, and fills the space between the "lambourdes" and the sides of the shaft everywhere in a water-tight manner.

The wedges are inserted so, as much as possible, to give the same tension at all parts of the crib, which is nccessary to prevent the crib being forced out of position, the correctness of which must be repeatedly tested. Of course, it will be understood that the number of wedges driven in is not the same for all parts of the crib, but varies, chiefly owing to the irregularities of the sides of the shaft. The moss is pressed so tightly that during the latter part of the wedging it can scarcely be perceived, the pressure upon the crib being so great that the opening made by the chisel for the wedges closes unless the latter is immediately inserted.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr. Von Groddeck, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

MINING INSTITUTE OF CORNWALL.

There was a large attendance at the opening meeting of the Mining Institute of Cornwall, Camborne, on Tuesday evening, when Mr. John Darlington read a paper entitled "Observations on Boring Machinery." Mr. G. L. Basset presided.

Mr. Darlington stated that too much of the economic result was at present attributed to the boring machine, and not enough to the proper and effective organisation of the work. The boring machine must necessarily be a reliable and good one, and constructed so as to withstand the heavy wear and tear to which it might be subjected. It should also be of sufficient power to drill the holes moderately quick. It was, however, of almost equal importance that the apparatus on which the machines were mounted should be of ample strength for holding them firmer to their work, when under the influence of a rapid succession of blows. It should be so contrived as to afford every facility for drilling shot holes in any required position. For permanent use very high speed compressors were not desirable. It should, however, be so constructed as to afford a maximum result for the power expended to produce it. For the purpose of receiving the centre cut the strongest explosive should be employed, and particular care taken to detonate and not burn the explosive. It would be important to ascertain if, by increasing the diameter, a lesser number of holes would not suffice for removing the entire cut or sink. In such case the fewer holes drilled with machines of increased power might be valued with the greater cost of explosives which would probably be required, and in this way the relative advantages of boring the number and time of the holes could be usefully determined. Shot holes should be bored as deep as might be found capable of effecting the removal of the ground, having also regard to the time of boring the hole, which usually increased with the greater depth. Electric blasting offered in itself an element of security and success. It would be well, therefore, to ascertain what increase to the normal rate of speed would result, and what percentage of explosive might be economised by the use of electric over safety fuse. It was scarcely open to doubt that the time was near at hand when the boring machine would form a part of every mining plant, that was where a considerable amount of work was to be done in moderately hard ground. It would be well to consider whether such plant should not be under the control of a mechanical engineer rendered responsible for the efficient performance of the apparatus and the judicious conduct of the work. The straightened and untoward circumstances connected with Cornish mining were not conducive to the trial of mine experiments, even to add value to so very important a subject. But the success of rock-boring machinery was beyond any doubt or question, and it now remained for the miners to acquaint themselves with the various appliances in use, and the different methods and modes of organisation employed in performing the work, and then to employ their knowledge for the benefit of themselves and their fellow-men.

Capt. Teague said they were all agreed that they must have rock-boring machinery if they wished to compete with foreigners. One thing in the paper had struck him, and that was with regard to the piece to be put across the shaft mouth. They all knew that in sinking shafts through very hard ground that at times there would be very great difficulty in fixing a piece of timber to place the stand on, and he thought something else might be adopted with advantage. With reference to what Mr. Darlington had said about tamping, he (the speaker) was inclined to think that very little tamping was required at all with dynamite. In fact, if the hole was filled with water after the dynamite had been inserted, he believed that was sufficient. Mr. Doering and Colonel Beaumont deserved the thanks of the mining community of Cornwall for the benefit they had conferred upon miners in general by the introduction of boring machinery into Cornwall. He thought they were on the high road to something very much better, very much cheaper and safer, than they ever were before. (Applause.)

Mr. Goffin, agent for the Diamond Rock-Boring Company, said that when the boring machine was first brought into Cornwall people were sure they would never bore the hard ground, but he always had the idea that anything that could be done by hand labour could be done by machinery. (Applause.)

Mr. Waddington proposed a vote of thanks to Mr. Darlington for reading such a valuable paper to them.—Mr. Husband seconded the proposition, and moved that the paper be printed for the benefit of the members of the Institute.—The first proposition was carried unanimously, as was also Mr. Husband's, which was seconded by Capt. Teague, jun.

Capt. Teague proposed a vote of thanks to the Chairman, which was seconded by Mr. Bain, and carried unanimously.

Mr. Basset briefly returned thanks, after which Dr. Hudson, of Redruth, amused the audience for some little time with an exhibition of the phonograph.

GEOLOGICAL SOCIETY OF LONDON.

Nov. 20.—R. Etheridge, F.R.S. (Vice-President), in the chair.

Rev. Jas. Compton, Buckley, *via* Chester; and John Dennis Paul, Leicester, were elected Fellows of the Society.—Rev. Fred. Chas. Lambert, B.A., Arundel House, West Hill, Sydenham; Robt. Plante, Cheadle Park, Cheadle, Staffordshire; and Ernest Swain, Campden Hill-road, were proposed as Fellows of the Society.—Rev. W. H. Allen, F.R.A.S., Kentish Town-road; George Grey Butler, Civil Service Commission, Westminster; John Dixon, Assoc. Inst. C.E., the Choubra, Surbiton; Rev. Wm. Downes, B.A., Kentisbeare, Collumpton, Devonshire; Jos. Drew, M.D., Foxgrove-road, Beckenham; Robt. Hartnoll Moore Jackman, Holly Lodge, Sidcup, Kent; Arthur Tom Metcalfe, East Retford, Nottinghamshire; E. P. Monckton, M.A., Fineshade Abbey, Northamptonshire; Albert J. Mott, Adsett Court, Westbury-on-Severn; Philip Lutley Sclater, Ph.D., F.R.S., Hanover-square; William Hobbs Shrubsole, Sheerness; and Alex. Thuey, Stevenage, Herts, of the Public Works Department, Calcutta, will be balloted for as Fellows of the Society.

The following communications were read:—

1.—"On the Upper Greensand Coral Fauna of Haldon, Devonshire," by Prof. P. Martin Duncan, M.B. Lond., F.R.S., F.G.S., &c.

2.—"Notes on Pleurodon affinis, sp. ined., Agassiz, and description of three spines of Cestracionts from the Lower Coal Measures," by J. W. Davis, F.G.S.

3.—"On the Distribution of Boulders by other agencies than that of Icebergs," by C. E. Austin, C.E., F.G.S.

The next meeting of the society will be held on Dec. 4, when the following papers will be read:—1. "On some Mica-traps from the Kendal and Sedbergh Districts," by Prof. T. G. Bonney, F.R.S., Sec. G.S., and F. T. S. Haughton, B.A.—2. "Pleistocene Notes on the Cornish Coast near Padstow," by Prof. W. A. E. Ussher, F.G.S.—3. "The Pleistocene History of Cornwall," by W. A. E. Ussher, F.G.S.—4. "On remains of Mastodon and other Vertebrata of the Miocene Beds of the Maltese Islands." by Prof. A. Leith Adams, F.R.S., F.G.S.

MANCHESTER GEOLOGICAL SOCIETY.

The ordinary monthly meeting of members was held on Tuesday (Mr. J. E. Forbes, F.G.S., the president, in the chair). The President opened the proceedings by briefly thanking the members for the honour they had done him in electing him to preside over the society for the ensuing year, and although he was not at that time, in consequence of the state of his health, able to read them a paper he hoped to do so before long. Thirteen new members of the society were then proposed, and duly elected.

Mr. J. S. Martin (hon. secretary) then read a letter from Mr. Thomas J. Nicolls, C.E., with reference to the finding of gypsum boulders in a railway cutting near Radcliffe, and a specimen of these was exhibited.—Mr. J. Dickinson, her Majesty's Inspector of Mines, said the fact of finding these specimens at Radcliffe would lead them to suppose that what was called boulder clay on the geological maps was really Permian marl, and it seemed not unlikely that a large portion of the geology of Prestwich, from Heaton Park and Whitefield to Radcliffe, would have to be re-cast.

Mr. W. J. Grimshaw, F.G.S., followed with a paper on "Timbering in Mines." The subject, he said, was a pretty well worn one, and he did not propose to go through all the details of timbering in mines, but he had simply collected together a few salient facts, and the inferences to be drawn from them, which he thought might be of interest to the members. He (Mr. Grimshaw) having briefly described the construction of pit-head frames, shaft-pumps, shaft-gearing, &c., proceeded to the most important portion of the subject—underground timbering; and with regard to this he observed that in underground working they had two pressures to guard against, and in so doing they had a diversity in the modes of timbering. The two pressures were vertical and latteral, and in turning an arch at the shaft bottom or any other important place it was necessary to consider the forces they had to meet. If no particular pressure were expected his arch would consist entirely of brick, but if a vertical pressure were expected he would put in a course of timber, and if a lateral pressure were expected he would spring the arch from timber. In working places the timber used for props or stretchers was made out of Swedish or Norwegian spars, and couplings of oak and larch. In highly inclined seams he held that the miner required an easily handled prop of sufficient strength to make his place secure. If it were worked only a very heavy larch the chances were that the miner would neglect to set the prop until the last minute, or perhaps not at all, and often an accident was the result. There was most economy in a good supply of timber of the best kind, and most adapted to the wants and work of the miner. He believed it was a great mistake to have small caps, as often a good cap would save a second prop. Caps ought not to be cut wedge-shape, because if a cap were wedge-shaped it followed that the prop was at its set before it was at right angles to the roof and floor of the mine, or if the prop were driven up until it was at right angles it was then a little beyond its proper set, and consequently only supporting by one-half of the prop head. The props should also be set as the timber grew, the thick end on the floor, as it was most natural, and they would support more weight. Props if set moderately close admitted of much easier recovery, and it was a mistake to calculate upon supporting the roof for any considerable time only upon props. Park walls should be put in, or chokes built, and the props withdrawn, as a few hours neglect often entailed the whole lot being broken, and the roof falling in. Chocks in longwall at the junction of roads in pillar working, and besides shoots for the coal to come down were all very useful, and answered much better whenever they could be used than props. The stretchers consisted of two props, one to be placed in the higher and the other on the lower side of the roadway placed opposite each other, and the cross-bars a little flattened at each end, and where they rested upon the head of the prop in the higher and lower sides. After describing by means of drawings the various modes of constructing the stretchers and couplings, Mr. Grimshaw observed that in wet ground larch timber was the best, but in dry measures oak caps, and when they could be got oak legs if straight, or oak caps and larch legs were as good timber as could be employed for underground work. Engine beds, door frames, and water dams were next referred to, and in conclusion Mr. Grimshaw observed that the special rule No. 40 of the Mines Act stated that "the miner shall secure the roof and sides of his own working place," and of a certainty that rule commended itself to the common sense of unprejudiced people. Who was so fit to make himself secure as the individual who was working therein? If he cared for his own safety he was bound to notice the varying states and different indications which from time to time obtained in his working place. He ought to have the most reliable knowledge of these conditions, and it only seemed natural that in a case where his own safety was mainly concerned he should be able to look after it better than could any one not so directly interested, and not able to observe so constantly. Still, people did not look after their safety and well-being so strictly as could be wished, more especially towards the time of making up, or close after the pay. Timber deputies did not seem to alter this state of things materially, and it was impossible that they could be everywhere at the time of need. The fittest man to keep a place in good order and safe was the collier who was used to the mine in which he worked, and it would be found that a considerable number of accidents occurred to men who had changed their places from one mine to another, or where the conditions of working in the same mine were altered. He (Mr. Grimshaw) had known many instances in which men had been hurt or killed on the first day of starting work in a fresh seam. People, however, did not live forever, and consequently it was utterly impossible to avoid changes The only precaution that could be taken was to exercise somewhat stricter supervision over fresh hands, though it was somewhat difficult to see how supervision could be made more strict than at present, bearing in mind that man was liable to error, and that the "perfect man existeth not."

Mr. SEDDON proposed a vote of thanks to Mr. Grimshaw for his paper, adding that it was a good practical paper, and if they had more of them they would be very useful to the county.—Mr. CHADWICK seconded the motion, which was agreed to, and a discussion on the paper then took place.

Mr. J. WILD said that Mr. Grimshaw was quite right in pointing out the extra safety which there was in the miners timbering their own places than in having timbering men going round. He should, however, have no objection to the timbering men drawing the props.

Mr. J. DICKINSON, Her Majesty's Inspector of Mines, who had taken the chair, observed that it required a practised hand to draw timber. There was another point in Mr. Grimshaw's paper, and that was that he preferred to put the thick or root end of the props on the ground. There was a popular notion that the timber when turned upside down—that was, the root end upwards—was not so liable to decay.

Mr. WILD observed that the thin end was often put downwards because of the dirt that accumulated round the bottom, and because the prop was easier to draw.

Mr. J. DICKINSON observed that in many of the steep mines it was not the practice of the men to set their props vertically to the pitch of seam; they did not set them perpendicularly, but they took a medium course about half way between.

Mr. WILD said in that case the prop should be but a little slanting.

Mr. WILD thought the props ought to be set at right angles with the inclination of the seam, and the reason that this was not done, he had been told by an old collier, was because the props were easier to draw. He believed that scores of places had been brought in through the timber not having been placed at right angles with the inclination of the mine.

Mr. DICKINSON thought there was something more than the mere drawing of the props involved in the manner in which they were set, for where the men had not to draw them themselves they were set in the manner he had stated. This was a question which was sometimes put in the examination of colliery managers and others, and there were various answers given to the same question, but he doubted whether the examiners knew more about the matter than a large number of the practical men such as he saw around him.

Mr. RATCLIFFE said he had found it a very great evil to employ little-mine men in big mines, as they were very awkward under the different conditions of work. With regard to setting timbers in steep mines, he thought that if a prop was set, and well driven home to its set, it ought at that point to be at right angles with the mine, but if it was allowed to be slack, whatever little settlement there was in the roof would drive it forward. There was another point which had been raised in the paper—with reference to the time at which accidents occurred. There seemed to be periods at which accidents were more prevalent, and these he had found to be two days or so before the make-up and one day or so after the men returned to work after the pay. There was a pay generally took place on Saturday, and Monday and sometimes Tuesday in the good times were occupied in drinking. Wednesday he had found to be a day fruitful in accidents; then before the make up there was a rush to make a good pay, and the men had no time to pay attention to timbering or anything else except getting out as much coal as possible, and the result was an increased number of accidents.

Mr. SEDDON did not agree that the setting of the props vertically in steep mines was the best method, nor did he think that the ease with which the props might be withdrawn should be taken into so much consideration; the safe propping of the mine ought to be the chief and first consideration.

Mr. SEDDON said with regard to setting the props with the thick end upwards one reason adduced was that they then obtained a better bearing power.

Mr. MARTIN said with reference to the use of oak timber as couplings he had found where they had a long time to stand without any great pressure that oak was preferable to pitch, pine, or larch, but where there was a great pressure the beach stood better than the oak.

Mr. FLETCHER observed that at one of their pits recently they took down a head gear of pitch pine which had been up for 25 years, and the wood was found to be almost as good as when first put up.

Mr. SEDDON asked what in the opinion of Mr. Dickinson was the best method of dealing with the cavities in a roof?

Mr. DICKINSON said there were several methods of dealing with these. The timbers were sometimes left naked, which might allow a freer ventilation, and sometimes they were covered over, which was occasionally absolutely necessary to prevent accident from the falling of the loose roofs, but the method of dealing with these must depend upon the circumstances of each case.

A MEMBER said that he had filled up a cavity with shavings and loose dirt and refuse.

Mr. DICKINSON said he should hesitate to recommend shavings being put into these cavities.

Mr. BURROWS said that they had used a great deal of old railway metals for propping, and found them answer very well.

Mr. DICKINSON observed that at several collieries in this district this was done, and old railway metals were found to answer well.

After some further remarks from other members Mr. GRIMSHAW briefly replied upon the discussion, and the matter then dropped.

A short discussion then followed upon a paper on the sinking of surface owing to the working of coal mines which had been read by Mr. Grimshaw at a previous meeting, the object of which had been to urge the collection of data with reference to the subsidence of surfaces under certain circumstances, which the author thought might be very useful.

Mr. DICKINSON said that 20 years ago he had read a paper on the same subject before the society. A friend of his in Scotland, whose attention had been called to the matter, had found that the sinking of the surface over a four foot seam was 3 ft., so that one-fourth was lost, the difference having been taken up by consolidation.

Mr. RADCLIFFE said that a friend of his had worked a three-feet seam at a depth of 52 yards under the Clyde, and had found no water coming into the workings, which was attributable to the very thick mud of the bottom of the river.

Mr. GEORGE WILD referred to a subsidence of 3 ft. 6 in., over workings 5 ft. 3 in. in thickness, lying at a depth of 500 and 600 yards.

Mr. DICKINSON said he had heard mining engineers contend that at a depth of 500 to 600 yards mines would not settle to the surface, but this was refuted by what Mr. Wild had stated.

Mr. MARTIN referred to the subsidence of a railway over workings which were 300 to 400 yards below the surface, but which the colliery proprietors had contended in an action brought by the company could not be due to the getting of the coal at that depth. He did not think the matter had yet been decided at law.

After some further discussion the proceedings were brought to a close.

THE CARN BREA DYNAMITE EXPLOSION.

The report of Major V. D. Majendie, Her Majesty's Chief Inspector of Explosives, on the circumstances attending an explosion of dynamite at Carn Brea Mine on Sept. 27, whereby two men were killed and three injured, contains much interesting information, and is of especial importance from its directing more prominent attention to the danger arising from the liability of part of a charge of dynamite to explode, leaving the remainder to explode unexpectedly when the men are steadily at work for the next charge. The bore holes were made with ordinary percussion drills, and the dynamite was manufactured by Nobel's Explosive Company, and pronounced by Dr. Dupré, who tested a sample from the same box, to be of fairly good quality, and that it passed the heat test usually applied to this class of explosive. Egestorff's detonators were used. The rock was hard capel, and there were seven men in the pare, one—J. Craze—being in charge, and responsible for the position, planning, and preparation of the holes, which he also charges and fires. J. Craze was not in the shaft at the time of the accident, and E. Craze, his brother, had charged and fired the last round of holes before the accident, though J. Craze had subsequently been in the shaft and had given directions as to the boring of the fresh holes. The dynamite was kept in a safe place in the level above, and only taken down into the shaft when the holes were ready to be charged. The primers have the detonators and safety-fuze attached above ground, and are sent down all ready prepared. The water and small debris are pumped out of the holes just before they are charged, and the fuse is lighted in the usual way. It appears that the last shots had been fired on the preceding evening in two groups—one of three holes and one of eight holes.

Some mystery has been thrown around the matter by J. Craze, who made a statement to Dr. Foster and Major Majandie, which was taken down by them independently in almost the same words, but at the inquest he withdrew and repudiated it. After the three and eight holes had been exploded J. Craze (on the following morning) examined the result, and concluded that another hole must be bored in the neighbourhood of No. 1, where the rock had not been sufficiently removed. He gave orders accordingly. He stated that he subsequently observed that this hole had not torn away completely to the bottom. He thinks that there "may have been 2 or 3 in." of the hole left. He probed the hole, and satisfied himself that it was not fully torn away, but he does not appear, after ascertaining that there was some of the hole left, to have pushed his enquiries further to test whether there were any explosive in it; in fact, he says that he did not do so. He found water and debris, but whether there was any dynamite left he does not know. It is the more surprising that, finding the hole in this condition, he did not make a more minute examination on this point, seeing, first, that he had given directions for a new hole to be bored at only about 1 ft. from the old one, and, secondly, that he had within his own personal experience (at West Basset Mine) known a case where a hole had partially exploded, and from the bottom of this hole he had withdrawn some unexploded dynamite which he found there. This neglect on the part of J. Craze was most probably the cause of the accident; he said nothing about the unexploded hole, and neither Cocks nor Hancock were aware that they were boring near an old hole.

There appears to be nothing whatever to show that there was dynamite lying about, nor that any nitro-glycerine had exuded. But it appears that in blasting with both dynamite and tonite (probably Major Majendie intends to infer the case is the same in all cases where the explosion is effected by detonation) there is a liability for the top of the charge to do its work whilst the bottom is left unexploded. Evidence of this was obtained by Major Ford as to tonite at the Festiniog tunnel, and by Major Majendie as to dynamite at South Roskear. It is on record, too, at Carn Brea a hole had been fired, and had apparently properly exploded, and after a lapse of a quarter of an hour the men resumed working, but while they were working the remainder of the hole exploded. At Marke Valley two holes were fired and went off on the Friday, and on the following Tuesday the bottom of one of the holes exploded, and nearly killed a man. At Carn Brea the miners suggested that these accidents (the non-explosion of the lower cartridges in holes) may be due to the fold of paper at the end of each cartridge forming a division. This does not seem to be improbable, and the remedy would not be difficult to find, as cartridges cases, which would pack tightly together, could be very easily designed. But if the statement of J. Craze is to be believed (though from the incident already mentioned too much reliance should not be placed upon it) the separation of the cartridges is not always the cause of non-explosion. He declared that at West Basset Mine he had known a case of a single hole (that is, not one of a group) wherein after the explosion of the upper part he found and withdrew therefrom about half a dynamite cartridge.

It is obviously improbable that half a cartridge should explode without the remainder under ordinary circumstances, but the experiments of Abel show that even the smallest obstruction suffices to prevent the transmission of the detonation. Major Majendie discusses the whole matter very fully, and affords a large amount of valuable instruction which should be carefully considered by all using dynamite, or other explosives of the same class. He points out that the utmost care is necessary to prevent any air space between the cartridges, such as are sometimes caused by using too large a cartridge. Unexploded dynamite, tonite, &c., should be carefully searched for after every blast, and in very wet places waterproof dynamite cartridges should be employed. He considers the accident was due to the carelessness of J. Craze, and appends his opinion that "it is not consistent with the safe carrying on of work of this description that the responsible foreman should be permitted to withdraw himself while it is in progress, as J. Craze did in this instance, and as E. Craze did when he was acting for his brother."

NEW AIR COMPRESSOR AND ROCK DRILL.

The improvements in rock drills and air compressing machinery which have been made since the driving of the Mont Cenis tunnel have been so numerous that it is somewhat difficult to keep a full knowledge of them well in the memory, yet all interested in the subject will have retained sufficient acquaintance with the general details to be able to appreciate any important modification. There are now in view and in operation at the engineering works of Messrs. A. Normandy, Stillwell, and Co, at Custom House Station, Victoria Docks, a new air compressor and rock drill invented by Mr. Edmund Edwards, of Southampton Buildings, and which have been very highly spoken of by the practical miners who have inspected and tried them. That simplicity and non-liability to derangement are important features in tools of this class is generally admitted, and in both these respects Mr. Edwards certainly seems to have left little to desire; both the compressor and the drill work smoothly and well, whilst from the nature of their constrnction there ought to be no difficulty in putting them into the market at a price which will permit of their adoption in every mine worth working at all.

The air compressor works without noise, has practically no valves, and the compressing pistons are worked without packing. How this is done can be quickly explained. The inconvenience of valves must have been felt by every user of air compressors, and by the use of a constantly rotating four-way cock of peculiar construction and a pair of plungers, this inconvenience is entirely obviated. The whole of the working parts from which there could be any escape of air are under water, the water serving at once for packing and lubrication. The two compressing cylinders are arranged side by side, and open at their upper ends. Each cylinder is provided with a plunger, working freely from end to end of the cylinder, and rendered air tight as follows:—The cylinders are fixed vertically upon a suitable bed plate or foundation, and around them is arranged a cistern containing cold water, the level of which is kept slightly above the upper edges of the cylinders, so that at every revolution made by the machine some of the water simply overflows into annular chambers in the cylinders and plungers, so as to lubricate them and make them air tight. With air at 60 lbs. pressure the only leakage was a bubble now and then. Upon the same bed plate are fixed iron frames, which carry to their upper parts bearings in which revolves a strong shaft, having fitted upon it two eccentrics fitted with straps and connecting rods, the lower ends of which are jointed to the piston in the cylinder. Upon the revolving shaft is fixed a heavy fly-wheel and a driving pulley or wheel, by which the shaft can be driven by any convenient power, or by placing a small engine on the same bed plate the whole compressor is made independent of any other motor.

The two eccentrics are arranged opposite to one another, so that when one piston is at the top the other is at the bottom of its stroke. Between the two cylinders there is arranged a four-way cock of peculiar construction. The plug has two of its sides removed so as only to leave a sufficiently wide piece across the centre of the plug, which revolves continuously in the shell of the cock, which has four openings, two of which (opposite to each other) open into the lower ends of the two cylinders respectively, whilst of the other two one is connected with a pipe through which the air which is to be compressed is supplied, whilst the other is connected to a pipe through which the compressed air is delivered, and as close as possible to this last opening is arranged a valve opening outwards. The air would be compressed as effectively without this valve, which only serves to regulate the pressure of the air, so that it may be at a minimum at the commencement of each stroke. The plug of this cock works almost without friction, as it is kept in place by a spring adjuested so as to nearly balance the pressure of the air tending to lift the plug out of its seat. It is also lubricated and kept air tight by being covered by the water in the tank, some of which at every revolution simply flows into grooves cut for this purpose. The plug of this four-way cock is connected to the revolving driving shaft, already described, by means of bevel toothed wheels and shafts, in such a manner that it is made to revolve continuously, but only makes one revolution whilst the driving shaft makes two.

It will readily be understood that during the continuous rotation of the plug there is alternately established a communication between the cylinder which has performed its work of compressing and the external air, and between the cylinder compressing and the receiver thus:—The driving shaft being made to revolve when one piston is at the bottom of its stroke, as described, the plug in the cock revolves at the same time, and after the piston has risen for a short distance the plug opens a communication to the inlet pipe, through which air is admitted into the cylinders. When the piston arrives at the top of its stroke the inlet opening is shut, and when the piston has descended for a short distance, the passage into the delivery pipe is open, and the air is compressed until its pressure is sufficient to open the valve already described, through which it is forced into delivery pipes or a reservoir until the piston has reached the bottom of its stroke, the revolving plug having then made one-half of a complete revolution. Precisely the same series of operations takes place in the other cylinders.

The rock drill is quite as simple and effective as the compressor, and is in every respect satisfactory, and about half the price usually charged for such machines.

GALVANIC BATTERIES.—It is proposed by Mr. P. GRABINGER, of Athens, to fix the carbon and amalgamated zinc in the closing cork of a glass or earthenware cell, so that the said bands do not touch the bottom when the said vessel is closed by the cork. The connection of the carbon with the conducting wire is effected by means of a small plate of platina, and the parts of the connection have washers of hardened rubber which will not admit moisture. The whole is overlaid by a good asphalte varnish to prevent incrustation of the salts on the end of the carbon extending over the cork; these salts would attract moisture from the atmosphere, and would corrugate the parts of the connection. This connection consists of a brass pin surrounded by a thin platina plate, or by a metal band covered by the platina plate; the first arrangement is more suitable for large elements with a strong current; the latter for smaller ones. The elements are filled with a mixture of pulverised manganese and pulverised sulphate of ammonia, mixed with as much water as to form a somewhat thick paste. Instead of the sulphate of ammonia sal-ammoniac may be used; the action will not be so strong, but of a longer duration. The vessels must be narrow, the manganese being insoluable, and the more distant parts of it not being wholly utilised. A battery composed of his elements would last five to ten years for electric bells and other purposes without requiring any attention or repair.

SCIENTIFIC EDUCATION IN CANADA.

Science is now so generally applied in connection with every branch of industry that he who fails to make himself master of the leading principles of the sciences applicable to the particular business in which he is or intends to be engaged is necessarily placed at a great disadvantage in the race for fame and prosperity as compared with his more highly educated rival, and hence it is that the importance of the extension of the facilities for obtaining scientific knowledge is so generally recognised. For some years past the efforts made in the several provinces of the Dominion of Canada to provide the inhabitants with sound technical and academical training at home have been from time to time referred to in the *Mining Journal*, and in recording the progress made the University of King's College, Windsor, Nova Scotia (which is now under the presidency of the Rev. Canon Dart, D.C.L., with Prof. H. How, D.C.L., as vice-president), has always been found entitled to honourable mention. The Calendar for 1878-79 just issued shows that continued energy is displayed in every department of the University, and some further extensions have been decided upon which cannot fail to strengthen the institution and greatly increase its usefulness.

The original foundation dates from 1788, and so long since as 1802 the Royal Charter was granted by which all the privileges of a University were conferred on King's College, which thus became the first University of British origin established in the Dominion. But this is not all, King's College is the only British Colonial University which has a theological faculty, and in which Church of England doctrines are taught. This naturally gives the University a character more nearly resembling that of Oxford or Cambridge than any other; but that this shall not deprive any inhabitant of the province of the superior instruction offered at Windsor, the board of governors adopting thoroughly liberal principles long since determined that King's College should be open to students of all denominations, and that no religious test should be imposed either on entrance or on graduation in any faculty, with the exception of Divinity, and as there are professors of divinity, English literature, and moral philosophy, of chemistry and natural history, of mathematics, natural philosophy, astronomy, and engineering, of classics, logic, and rhetoric, and of modern languages ample facilities are offered for the acquisition of knowledge which will enable all who have gone through the King's College curriculum to avoid such doubtful compliments as that which Heine paid to his friend when he said "You will think me stupid no doubt, for ——— has just been here, and I have been exchanging ideas with him."

In 1871 a curriculum was issued for a course of Civil Engineering, and the University has subsequently granted degrees and diplomas in that science, as well as in Arts, Law, and Divinity. This engineering department has proved successful, and as the executive have wisely fixed the standard at the examinations sufficiently high to prevent any but those likely in after life to do credit to themselves and reflect honour on the University, the degrees and diplomas granted are already accepted throughout the Diminion as indisputable evidence of the competency of the holders. It is probable that hereafter the progress of this department will be even more rapid than it has been, as from the increased activity observable at King's College School it is but reasonable to suppose that a larger number will be prepared to profit by the engineering course in the College. As to the mineral resources of Nova Scotia, enough exploratory work has been done to afford ample evidence that by systematic development large commercial results would be obtained, and it may be hoped the Marquis of Lorne's reference to the mines of the province on the day of his landing will remind those concerned that it is not coal alone which should contribute to Nova Scotia's wealth. It can scarcely be questioned that the profits realised from the mines will be almost exactly in proportion to the engineering skill brought to bear upon their working, and certainly none can be so well able to ensure that success which will command abundance of capital for making the mining and railway works an important branch of industry as Nova Scotians well trained in a Nova Scotian University.

That until within the last ten or twelve years the progress of King's College was slow and unsatisfactory can scarcely be denied by its warmest friends, but there is every evidence of a desire to redeem past errors, and to give the University renewed activity. The project for making King's College the Theological chair for the diocese of Fredericton is one which would obviously be of such great and mutual advantage that although for the moment there is some hitch in the negociations it is to be hoped it will ultimately be carried out, and there certainly appears to be no reason why some similar arrangement should not be made with every diocese in the Dominion, as by such co-operation the facilities which could be offered to every Canadian to study and graduate under the most favourable conditions without leaving the country would assuredly tend to ensure a better educated and more enlightened ministry, and thus materially strengthen the Church. Another sign of the renewed vitality of "Old King's" is the admirable resolution on the notice of motion of Mr. Wiggins bearing upon the election of Governors. It appears for some years past it has been the custom for any alumnus who might choose to do so to solicit proxies (which were often thoughtlessly given), and thus secure his own object regardless of the views or arguments put forth at the election meeting—a result with which none were more dissatisfied than many of those who had given their proxies. In future all candidates are to be proposed a year in advance, and previous to the ballot voting papers with the names of every nominee are to be forwarded by the secretary to every voter, who will thus be enabled to vote as he thinks proper. Altogether there appears to be a decided movement for the better, and no doubt by the time the next Calendar is issued the University will be in a position which it has not enjoyed for many years.

COPPER MINING IN NEW SOUTH WALES.—A correspondent, writing from Sydney (Sept. 30) says—Bensusan's Copper Mining Company (Limited), Frogmoor, is a property which has just been launched under exceptionally favourable conditions. But for these, and the undoubted value of the property, there would have been but small chance of placing a mine on the market in the present state of the metal market, and the general depression of this industry, and more particularly in the exceptionally tight state of the money market here and at home. One special feature in the prospectus is that the shares sold to the public are preferential to the extent of 50 per cent. before the owners get any dividends. A further sum, equal to 50 per cent. on the preferential shares, has to be earned before the original proprietors get any dividend; and even this sum may be spent on exploration, plant, machinery, or improvements. These facts speak well for the confidence of the promoters. The next feature is that the shares are subject to no calls, as the mine is in a sufficiently advanced state to pay early dividends. Two mining captains of known ability and integrity have recently reported on the property, and attested to the large quantity of ore in sight, ranging from 8 to 20 per cent.; the last months yield from the lower levels gave 12 per cent., and the drives on extension south are now yielding an averuge of 15. The lode from the 25 ft. to the 35 ft. level is 5 ft. thick, worth 80*l.* per fathom, and will be stoped at 10*l.* to 12*l.* per fathom. Mr. Bensusan has spent 14,000*l.* on this property, and everything points to the return of the whole outlay

within 12 months from this date. The mine is only 30 miles from the rail, and wood is very plentiful. The right to wood water and minerals extend over several thousand acres; and, in short, everything has been done to ensure future prosperity to this undertaking. Captain Wills, who was many years in the Moonta Mines, states that the country is exactly the same in the two mines, being argillite. Capt. R. N. Williams, late of the Swowball, and now manager for the Great Britain Company, stated it was the best mine he had seen in New South Wales.

Meetings of Public Companies.

GENERAL MINING ASSOCIATION.

The half-yearly general meeting of the proprietors was held at the City Terminus Hotel, Cannon-street, yesterday—

Colonel SCOVELL in the chair.

Mr. C. G. SWANN (the secretary) read the notice convening the meeting and the minutes of the previous meeting, which were confirmed.

The CHAIRMAN said he would have to detain the shareholders only a short time in referring to the general affairs of the company during the half-year, and as there was no business to transact he would, as soon as possible, pass on to matters of which special notice had been given. He regretted to have to commence his address by referring to the unfortunate occurrence which some of them might have read of—one of those accidents to which coal mines were liable in every part of the world. On May 20 last an explosion took place in the new winning, and although only small damage was done to the property, and operations were only delayed about five days, it unfortunately resulted in the loss of six valuable lives, amongst whom were two overmen who had been in the service of the company for a long time, and a man named Greenwell who was very highly esteemed. This unfortunate accident had, of course, been a source of great anxiety to the directors and all concerned. It was doubtful what had caused the explosion, because their mines at Sydney were not of a dangerous or inflammable character, but it was probably due to the carelessness of one of the men, who had paid for his want of caution with his life. The verdict of the coroner's inquest was "Accidental Death." At the time of the accident the mine was full of people, and but for the gallant conduct of Mr. Brown, the local manager, and the men under his charge, who at the peril of their own lives promptly descended into the pit, fourteen other men would have lost their lives. The board had already communicated a resolution recognising the valuable services which were rendered by Mr. Brown and his men at the time of the accident—an expression of opinion in which all the shareholders would doubtless concur. It would only weary the shareholders to refer at any length to the continued and increased depression of trade, in which no industry had suffered to a greater extent than the coal trade. This had pre-eminently been the case in Nova Scotia, where the trade had been in a state of stagnation. Many of their neighbours had done little or nothing, and under these circumstances the shareholders would not expect a very flattering account of affairs of this association, but he thought they were not without hope of encouragement in the future, for notwithstanding the great depression the Sydney Mines had not only held their own, but at the date of the last telegraphic advices they had sold some 15,000 or 16,000 tons in excess of the amount sold at the corresponding period of last year. If they were as fortunate during the month of December as they had been throughout the season the Sydney sales would amount to about 100,000 tons, as against 85,000 tons last year. This was, of course, very encouraging, when contrasted with the position of their neighbours, many of whom were in difficulties. They had naturally, he was sorry to say, had to suffer a reduction in the price obtained for the coal, and the fall had been from about $2·25 to $2, or about 1s. per ton, which upon 100,000 tons, represented a falling off of 5000*l*. On the other hand, there had been certain reductions in the cost of production, which he hoped would go a good way towards meeting the loss in price. In the busiest time of the current season they were raising coal cheaper than at any previous period, notwithstanding an increase in the cost of labour and materials. These results were so far satisfactory that he hoped they would at the end of the year present accounts which would not compare unfavourably with those presented last year, notwithstanding the decreased selling price and the many obstacles with which they had had to contend. He would hardly do justice to the wishes of his colleagues, or satisfy his own inclination, if he did not refer to the source to which they were indebted for the favourable statement which he was able to make—he alluded to the periodical visits of Mr. Swann, their secretary. Mr. Swann had introduced various economies in the working of the mines; and this year he had succeeded in making arrangements to which must be attributed in a great measure the increased sales against the decreased demand in St. John's, New Brunswick, Sydney, and more especially in Halifax. Owing to the very keen competition which had existed they lost a large amount of sales, but since Mr. Swann's visit the sales of bunker coal had largely increased, and with only two exceptions he believed they had had the coaling of every steamer that had called at Halifax. (Hear, hear.) With these few remarks he would bring the ordinary meeting to a close, unless any of the shareholders wished for further information on the general business of the company.

No questions having been asked, the secretary read the notice convening the special meeting.

The CHAIRMAN then said the special meeting had been called to discuss a proposition to sell a portion of their property, situated at Spring Hill, in the county of Cumberland. It would be remembered that this company possessed by an assignment from the late Duke of York the whole of the mineral rights in the Nova Scotia and Cape Breton, but this monopoly, which they maintained for some years, was a source of constant contention between the colonial authorities and this association until, in 1858, a compromise was effected by which, in consideration of their resigning their claim to the monopoly of working the whole of the minerals in the colony, certain areas of coal were reserved to this association in different parts, but chiefly in Cape Breton. The whole extended to 28 square miles, in three separate areas. Since the time of that compromise the association had not opened or worked any fresh area, with, possibly, the exception of the Lurgan Mine, which was opened upon the closing of the Bridgport Mine. The leases possessed by the company were renewable at the expiration of the term, in 1866, for three successive periods of 20 years each, upon the condition that they were actually working the particular portion for which the renewal was asked. In any case, however, their exclusive rights would cease in the year 1886, and they would work under the same conditions as the other colonial colliery companies. It had, therefore, been their policy in the face of the depression which existed to derive what benefit they could by the sale of those portions which they could not work. The times had, of course, been much against their selling properties, but at different times they had disposed of the Joggins and Albion properties. With respect to the Spring Hill property, it was situated in a somewhat remote district, in which the means of communication and transport were very difficult, and had the association determined to work it, it would have been necessary to construct a railway of 26 miles, either to the port of Parsborough or St. Lawrence. Railways had now, however, been constructed by the Inter-Colonial Railway Company passing within three or four miles of Spring Hill, and another line had been constructed to Parsborough, at the head of the Bay of Fundy, which was a very favourable port for shipments to the United States. It was always believed that the association possessed a very valuable area at Spring Hill, and that the bulk of the seam of the field lay within the boundary of their lease. The seams had, however, appeared outside the boundary, and the adjoining property had been worked by the Spring Hill Mining Company for some years, and it was with this company that they had to deal. This association had been persistent in their endeavours to dispose of their property at Spring Hill, and, ultimately, owing to the exertions of Mr. Swann, the negociations had ended in the directors signing, subject to the approval of the shareholders, an agreement for the transfer of the property upon certain terms. The Spring Hill Mining Company consisted of about 80 persons, among whom were some of the principal mercantile men in St. John's, New Brunswick, and the chairman was the Hon. Alexander Macfarlane, a senator of the Dominion Parliament. The company was incorporated by an Act of the Colonial Legislature, and the liability of the shareholders of the company was limited to the nominal amount of their shares, and the company began its operations in the year 1872. In the year 1873 they sold 6000 tons; in 1874, 31,000 tons; in 1875, 47,000 tons; in 1876, 68,000 tons; and in 1877, 86,000 tons; and for the current year their returns were about 10 per cent. in excess of the corresponding period of last year. It would, therefore, be seen that this was a substantial company, and that their returns equalled those of the old-established Sydney Mines of the association. The directors had tried to sell their unworked property at Spring Hill and of the Spring Hill Mining Company for a minimum price of 80,000*l*., but in consequence of the great fire which occurred in New Brunswick last year, and the general depression in trade, there was very little money to be obtained there. After a great deal of negociating, it had been agreed to part with the Spring Hill area to the Spring Hill Company on the following terms:—13,000*l*., payable by instalments up to Dec. 31, 1885, and one-quarter of that company's capital—3,05 of their fully paid-up $50 shares, or nearly 33,000*l*.; for which purpose the Spring Hill Company proposed to increase their capital to 132,000*l*. The shares allotted to this company would not rank for dividend until after Jan. 1, 1881, that was in two years from the assignment, after which they would share and share alike. A bond would be given for the 13,000*l*., which would be payable out of the profits of the company, but the legal and other expenses would reduce the amount to about 10,000*l*. The Spring Hill Company's property was fairly equipped, and had been worked economically, and in 1875 they paid 4 per cent., in 1876 5 per cent., and last year either 6 or 7 per cent. A provisional agreement had been entered into, and it was this which the shareholders would be asked to confirm. The Chairman having read the heads of the agreement—which embodied the terms stated, and provided further that the General Mining Association should have the nomination of two directors on the board of the Spring Hill Mining Company—said this was the only scheme which the directors could recommend the shareholders to sanction in the absence of funds to work the property themselves, and with the impossibility of obtaining more satisfactory terms.

The SECRETARY having formally read the heads of the agreement,

The CHAIRMAN moved the following resolution:—"It is resolved (*a*) that the heads of the arrangement between the Association and the Spring Hill Mining Company, dated Oct. 4, 1878, be, and the same are hereby confirmed and adopted by the Association, with such modifications (if any) as the directors of the Association may agreed on with the Spring Hill Mining Company, or the directors. (*b*) That the directors of the Association be empowered, on the behalf of the Association, to affix the common seal of the Association to any instrument or instruments, and from time to time to do all other acts and things necessary or proper for carrying the said heads or arrangement, with or without modification, into effect."

Mr. BISCHOFF, in seconding the resolution, referred to the indefatigable zeal of the secretary in the company's interests.

After a short discussion, the following words were prefixed to the resolution:—"That, subject to confirmation at a future special general meeting of the proprietors," it is resolved, &c. The resolution was then carried unanimously.

In reply to questions, Mr. BIRCHAM (the solicitor) said that the Spring Hill Company's shares were limited to their nominal amount, and that the arrangement would not be concluded by the directors until that company had effected one or two slight alterations in their Articles of Association, which had been agreed upon by the two boards. Under their act the Spring Hill Company had full power to buy any other property, and to pay, or partly pay, for it in fully paid-up shares.

The CHAIRMAN further stated that this Association would have a bond for the 13,000*l*., payable either out of the profits or capital of the Spring Hill Company in the instalments he had mentioned. This Association would undoubtedly possess the right to sell their Spring Hill shares if they did not desire to keep them.

Resolutions were subsequently passed with reference to amending the Articles of Association with respect to the selling, leasing, and exchanging of its property, and also altering the time fixed for the giving of notices of meetings from 21 to 14 days, to from 14 to seven days; the Chairman having explained that it was sometimes very inconvenient to be tied down to a particular day, especially at the period when the accounts are presented.

On the motion of Mr. RUDING a vote of thanks was passed to the Chairman, who, in returning thanks, stated that the confirmatory meeting would be held in three weeks time.——The proceedings then terminated.

CHONTALES CONSOLIDATED MINING COMPANY.

The eighth ordinary general meeting of shareholders was held at the offices of the company, Gresham House, on Thursday,

The Right Hon. the Earl NELSON in the chair.

Mr. J. JAMESON TRURAN (the secretary) read the notice calling the meeting.

The CHAIRMAN moved that the report be received and adopted, and that the balance-sheet and accounts be passed and allowed. He pointed out that the profit and loss account was made out for the twelve months ending June 30 last. The former report presented to the shareholders in November was not by Mr. White, the new manager, and, therefore, they had in their hands the worst year they had had to deal with as far as returns went in reference to the mine. It would not be necessary to go into that now, because he fully explained the causes of the falling off at the last meeting. The directors had sent out certain things (which the manager stated he required) in ample time to enable them to reach the mine in the dry season of the year, when they could easily be sent up the country to the mine, and, as far as the directors were concerned, and the agents were concerned, there was no reason why they should not have reached Greytown; but owing to stress of weather (as was fully explained at the last meeting), the captain of the vessel was unable to deliver the things at Greytown at the time expected, and consequently they were very much behind hand, as there was great difficulty in getting them up the river, which had sunk very low. The directors did all they could, but there was no chance of compensation. As a matter of fact, however, this did not cause any loss of time, because Mr. White devoted his energies to repairing the machinery bit by bit. Mr. White stated—"In the long run, if you can only stand bad returns for this time, I shall be in a position, when we do put the things in order, to proceed without stopping, and it will pay you in the long run." The year ended on June 30, but he was happy to be able to give the shareholders later information, and he thought he should be able to show them that Mr. White had fully verified the statements he had made. Mr. White had put up the machinery in good order, and not only that, but since he had put it in good order he began to make the profits which he had promised he would make. The profit in July was 177*l*., in August 280*l*., and in September 606*l*. 4s., so they had really made profits to the amount of 1063*l*. Mr. White assured the directors in his letter (which had been published in full) that he has every reason to believe these returns will be fully kept up. (Hear, hear.) Mr. White went further, and told them the returns would have been larger, but they had less water than they had been accustomed to have, and this seemed to have been the case everywhere except in England. They hoped next year to have a better supply of water. Owing to this they had not been able to employ the stamps fully, but Mr. White had not only been able to put the mine in order, but the stamps also. They had now got duplicates of pretty nearly everything, and the directors had started a plan by which a proper stock was sent monthly for the purpose of keeping up supplies, so he hoped there would always be a proper stock of the requisite things on hand. They had always had two engines, both of 20-horse power—one an old one, and one newer, which at present was doing very well. When they tried to work the pneumatic stamps with the old engine it was found difficult, and it had been reported to the board that not only was the fire-box of the old engine too small, but it was supposed to be in a bad state. The directors were, therefore, contemplating sending out another engine, in order that there should be no further stoppage at the mine. The subject would be submitted to a gentleman who understood these matters, Mr. Darlington, and the directors would have his report upon the best sort of engine. He would mention another thing to show how thoroughly Mr. White had done his work, and that Mr. White was not only a man of words but of deeds. Mr. White had sent word home that if he had a good medicine chest the company need not go to the expense of a doctor. In consequence of this the directors sent out a medicine chest, and discontinued the services of the doctor, thinking it would be well to try the medicine chest. Well, they had all been down with the fever out there, and the medicine chest brought them round. One man had died, but he never went to the medicine chest. Mr. White wrote—"I do not know if we should have cured him if he had come; at all events, he did not come." Mr. White closed by asking that the medicine chest might be replenished, which the directors would have great pleasure in doing. Although the directors had the utmost confidence in Mr. White, yet they had thought it their duty to look ahead, with the view of extending the working of the mine. They had taken steps to elucidate the matter as regarded the Pavon Mine. Mr. White had answered all their enquiries on that point, and the directors had, therefore, come to the determination that for the present it would be better for them to confine themselves to the existing operations on the upper mines, being certain that those operations would pay, at the same time the directors were keeping their eyes open. They were making careful enquiries into the matter of the improved stamps, and would be careful to see that they were really good, simple, and easily mended when out of repair. The directors were told that they were capable of doing twice the amount of work compared with the ordinary stamps. The board were rather anxious that the full amount of 5000*l*. of debentures which they asked for should be taken up; he might mention that 1175*l*. had been taken up out of the full amount, which had enabled them to go on for the present, and the directors had been enabled by this and from the returns to keep the mine supplied. The directors had also been able to pay off the loan from the banker, so that the company was now nearly free from debt. (Hear.) The steam engine would cost a pretty good sum, as the freight was nearly as much as the cost of the engine. To send this out money was required, and it might also be necessary to do something to improve the stamps, and for these and other reasons the directors would be glad if the rest of the debentures were taken up. The directors had every confidence in Mr. White, and one or two English assistants whom he had asked for had been sent out. Mr. White had been very successful in managing the natives, many of whom worked as well as could be wished, and the directors had no fears on the score of labour. He did not wish to exaggerate, but really he believed they had every reason to thank Mr. White for what he had done, and to believe that he was a true man. (Hear, hear.) The shareholders had shown great patience, but the little bit of good news which had been received concerning the working of the last three months was, he thought, sufficient to justify the shareholders in thinking that Mr. White was really going to carry out what he had said he could do. (Cheers.)

Mr. PARKE PITTAR seconded the resolution.

Mr. PALMER, in the course of some observations, suggested that the stores should be sent by way of Panama.

The SECRETARY, who has visited the mines, pointed out that there was a greater land carriage from that part of the coast, and, therefore, the cost of carriage would be much larger.

Mr. PALMER suggested that the board should advertise for an engine; if they did that they would be able to obtain one on reasonable terms, as so many mines were being stopped. As to the debentures, he thought the issue of any further amount was like hoisting a danger signal; now that profits were being returned, was it not time to haul down that signal?

The CHAIRMAN replied to the remarks of Mr. Palmer, most of which were on matters of detail. As regarded the debentures, the issuing of them was in no way hoisting a danger signal. For the reasons he had already stated the directors considered it advisable that the amount should be taken up. Referring to the machinery, he mentioned incidentally that Messrs. Harvey, although perhaps a little dear, had served the company well, and had been most careful never to send out anything which was in any way defective.

The resolution was then put and carried.

On the motion of the CHAIRMAN, seconded by Mr. PALMER, the retiring directors, Mr. J. O. Hanson and Mr. Parke Pittar, were re-elected.——Mr. PITTAR, having acknowledged the re election of himself and Mr. Hanson, said that as the largest shareholder in the undertaking he dissented from the observations of Mr. Palmer, who objected to the issue of the remainder of the debentures. In mining time was money, and they should take every opportunity of realising the advantages of the mine as soon as possible. (Hear, hear.) They wanted working capital. They had to go on stinting from month to month. The directors had had to make themselves personally liable for loans, which was a position they ought not to be placed in. In order to test the feeling of the meeting he moved "That this meeting entirely supports the views of the noble Chairman that now the operations are going on with monthly increasing success the works should be prosecuted with increasing energy, but to enable this to be done it is of great importance that the balance of the 5000*l*. debentures lately authorised should be taken up by the shareholders, and that application to the shareholders to this effect should be made without delay, as meriting the support of each individual shareholder." He would gladly subscribe his proportion.

Mr. H. W. NOAKES seconded the resolution, believing that success must come. He mentioned that his uncle, the late Mr. Noakes, had to the day of his death the fullest conviction that the Chontales would one day turn out a rich mine.

The resolution was put and carried.

Mr. W. F. Moates was re-elected auditor.

Cordial votes of thanks were then passed to the Chairman and directors and to Mr. White, and the meeting broke up.

NEW CATHEDRAL MINING COMPANY.—The statutory meeting of shareholders was held yesterday. It was stated that the response to the application to the public to take shares had not been quite so great as was anticipated, but that may very well be accounted for by the great depression in trade. Several offers to take up shares have not yet formally come in. A report of the proceedings will appear in next week's *Mining Journal*.

PENSTRUTHAL CONSOLS TIN AND COPPER MINING COMPANY.—At the meeting of shareholders yesterday the report held out good prospects of future success. Some important underground workings are being carried on with the view of opening up a large and regular supply of ore. As to copper, it may be mentioned the prospects of a considerable produce of that metal in depth under the tin ground is more promising. A report of the proceedings will appear in next week's *Mining Journal*.

GREAT D'ERESBY MINING COMPANY.—The statutory meeting was held on Thursday last, when the completion of the working agreement with the Mineral Corporation of Great Britain (Limited) was announced, and very favourably received by the members present. Operations have been already commenced, and as Great D'Eresby is encircled by Hafna, Trefriw, and D'Eresby Mountain Mines, and has several of the same lodes, very favourable results are anticipated.

[For remainder of Meetings, see to-day's Supplement.]

THE MINERAL WEALTH OF TURKEY.

In his new work on Egypt, Cyprus, and Asiatic Turkey Mr. Farley writes with the authority of one who knows his subject from personal observation, and careful study founded thereon. During the last ten or twelve years he has given to the world, at short intervals, several volumes relating to Turkey and the Turks, and in these successive publications he has imparted much new and valuable information, and given many practical suggestions. Mr. Farley has, indeed, contributed a small library to this interesting theme, and presented us with a real picture of the Turks in all the aspects of their character—social, moral, religious, political, administrative, industrial, and financial. The merit of his works in this practical age is that they are full of matter-of-fact information, though when occasion justifies he can indulge with effect in descriptive delineation of character, scenes, and landscapes, and beguile his readers with true eloquence.

Passing by the lighter descriptions of the people—their manners, customs, and religion—we doubt if the material resources of Turkey have been so well represented by any other writer. But Mr. Farley is not only well informed, he is usually opportune also. For instance, the publication in 1875 of his brochure, the Decline of Turkey, woke all Europe from its dream of the security of Turkish finance, and was speedily followed by the terrible collapse which it too plainly foreshadowed.

The work before us * bears many signs of a word in season, and that, as may be implied from a high authority, is a very good thing indeed. The author tells us that his first intention was to contribute from the sum of his experience notes useful to travellers, and to direct attention to the attractions of a winter residence in Egypt, of spring in Syria, and summer on the Bosphorus. Mr. Farley is an excellent traveller, for he observes with keen penetration, and judges with a cool discrimination aided by large and liberal views; besides, he is a skilful narrator of the actions and scenes that have passed under his observation. But he is more than a traveller and a descriptive writer, and in this particular case the deeper faculties of his mind have betrayed him—if it be a betrayal—into a departure from his original intention, and a more comprehensive treatment of his subject as it has risen before him in its diversified features. As the result we have not only an interesting book of travel but a comprehensive study and a large survey of Turkey in her internal and external relations, and also in her modern, historical, and geographical aspects.

Our readers will take a special interest in those chapters which relate to the material resources of the empire—resources that are vast beyond the general conception of miners, and which, had they been developed with one-tenth the energy and industry that characterise our own people would have saved Turkey from the humiliation of her present impecuniosity, and from the disasters to which that impecuniosity has so largely contributed. What would not Cornishmen, or Welshmen, or the sturdy men of the North have given for the opportunity of working the mineral wealth which, in Asia Minor, still lies unredeemed from the grasp of Nature? Nature so bountiful to the industrious, so miserly to those who will not help themselves.

Of the coal mines in Heraclia Mr. Farley says:—

In this district the mineral crops out on the surface, and the seams which vary in thickness from 3 ft. to 18 ft. have been inexpensively worked by adits into the side of the mountain; but through unskilful working they do not give either is quantity or quality a tenth part of what they are capable. . . . . The coal is easy to win, and is large and marketable. In depth the quantity will, without doubt, improve, while if steam colliers were employed in its transport, instead of the small sailing craft now in use, a marked difference would soon be observable in the size and general appearance of the coal when delivered for consumption. This splendid property will, however, remain unproductive to the Government until foreign enterprise is invited to do that, for the accomplishment of which the capital and industry of the country itself are inadequate.

Mr. Farley also points out the extraordinary metalliferous wealth which still lies dormant in Asia Minor. He observes:—

No less than 82 mines of various ores have been discovered, but of this number few are now in operation, and of these not one is worked to the full limit of its capacity. Five silver mines, one of lead and four of copper, were six years ago worked by the Government, the first producing about 570,000 okes only, the second 175,000, and the third 945,000. Of the mines worked by private persons, those of Eléon, near Trebizond, yield 250,000 okes of copper, and those of Tokat 300,000. In the year 1862 more than 440,000 kilos. of copper, valued at about 1,000,000 frs. were shipped to France. The copper mines of Bakyrkurchai, which in the time of Mahmoud II., enabled Ismail Bey, the Turcoman chief of Sinope, to pay a yearly tribute of 200,000 ducats are now completely neglected. The mines of Tireboli, which formerly under very bad management yielded from 150 to 200 tons of copper annually, are now practically unproductive, though possessing abundant fuel and every advantage of situation that mining enterprise could require. The silver mines of Gumush-kaneh, near Trebizond, once the most famous of all the silver mines in Asia, are now also nearly forsaken, their annual net produce seldom averaging more than 90 lbs. The only mine in Asia anything like a success is the well known Argana-Madén, which produces nearly 400 tons of copper annually. The average ores in this mine contain 12 to 15 per cent. of pure metal, and the profits under good management ought to be considerable. The mines of Bulgar-Dagh, on the slopes of the Taurus, are also exceedingly rich; the ores containing 21 per cent. of lead, giving 428 grammes of silver and 4 of gold per 100 kilogrammes. The yield at present is trifling, but the mines are capable under improved management and with good machinery of producing 12,000 tons annually, while the cost of extraction is estimated only at 30 frs. 50 c. per ton. Argentiferous galena exists also in great plenty at Akdagh-Madén in the district of Sokat, but though the veins crop up in the very midst of forests, and labour is cheap and abundant, little of the ore is at present utilised.

What a picture of buried wealth, of gradual decadence, of blank helplessness and hopelessness in the future! The evidence that Turkey has had rare opportunities and has lost them by the indolence and corruption of her rulers! The railways of Asiatic Turkey, the great Euphrates Valley scheme, a superior route by the Tigris, roads, harbours, canalisation, narrow-gauge railways, and a thousand other subjects come in for a share of intelligent discussion. Egypt in her present aspects and in relation to her newly developed industries; and Cyprus with her variable and treacherous climate, her general decadence in harbours and commerce, in agricultural and mineral wealth, also occupy a large share of the attention of the author, who treats on all these topics with his usual clearsightedness and incisiveness.

The prospects of farming with almost fabulous profits, sheep, vine culture, and wine making, the mulberry and silkworms, a new field for British capital and enterprise, are likewise treated with much comprehensiveness; and here, indeed, the author's "happy eloquence is quite at home," for he has studied all these subjects on the spot, and has obviously since reflected on them with no little intelligence. It is, indeed, not too much to say that Mr. Farley has given us a volume which rises to the dignity of a standard work on the subjects to which it relates.

Of the vast agricultural resources and the climatic attractions of Syria and Asia Minor the volume speaks in terms so glowing that the reader will regret a land so rich and fertile has been given over to the blight of Turkish misrule, and is not yet available for the energy and enterprise of Anglo-Saxon colonists. To the incapacity of the Sublime Porte to reform its government, to rule over a great, a free and a prosperous people, or to administer equal justice to alien races and creeds, Mr. Farley bears abundant testimony. He tells us how if the British Protectorate is to be made a reality the whole burden of the administration must be assumed by Great Britain, and he makes us shudder at the ever-increasing responsibility which he points out as the inevitable outgrowth of this protectorate; unless, indeed, this country should content itself to allow the famous con-

* "Egypt, Cyprus, and Asiatic Turkey." By J. LEWIS FARLEY. London: Trübner and Co., Ludgate Hill.

vention to become a dead letter and thus evade the responsibility altogether.

But it is not our province to enter on these political questions, however interesting they may be. Suffice it to say that Mr. Farley has given us a fresh and animated picture of Egypt, Cyprus, and Asia Minor. With a lively pen he has sketched the life and manners of the people, the crimes and blunders of the rulers, the fading glories of picturesque old cities which might still have been free, prosperous, and wealthy. He has disclosed the vast material resources which have hitherto been wantonly neglected, but which still remain hidden away and available, the pledge of future greatness when these lands, so favoured by Nature, shall have passed under more able and more honest administration.

COATING AND PRESERVING METALS.

To prepare the composition which Mr. A. P. DAUMESNIL, of Paris, proposes to apply for coating metals to prevent oxidation he takes about 1 kilogramme of borate of lead, and grinds it in water in a mill (such as that employed in the porcelain manufacture for grinding vitrifiable colours) until it is brought to a finely divided state, and is easily held in suspension in water without the necessity of frequent stirring, and when this result is attained it is placed in a vessel of sufficient capacity to contain about two litres of water, and allowed to settle, after which the water used in the grinding is drawn off. He then dissolves about 12 grammes of chloride of platinum crystals in a litre of distilled water, and when completely dissolved, adds 25 centilitres of ammonia in small quantities at a time, and well stirs the whole with a glass spatula. The ammonia precipitates the platinum in an extremely fine state of division in the form of a brown powder in the course of about three hours; after which the ammoniacal water is decanted off and replaced by pure water; it is then again stirred with the spatula, and allowed to settle a second time for about three hours, after which the water is decanted off, and the platinum obtained is mixed with the borate of lead. To ensure a thorough mixture of these two products, they are placed together in the mill, and worked for at least half-an-hour, after which 5 litres of water are added, and the product is then ready for use. The piece of metal to be coated, whether of steel, wrought or cast iron, copper, or other metal, after being cleaned or washed, is to be dipped in the composition, and then placed in a muffle, and the heat raised until the composition changes from a white to a black colour, resembling that of dull iron. The operation is now complete, and the piece of metal may then be removed from the muffle and allowed to cool.

It will be understood that the invention is not limited to the exact proportions, manipulation, or mode of application above described. The same results may be obtained by varying the proportions of the borate of lead and of the platinum, and by substituting for the latter one of its congeners or metals of the same group, such as palladium, osmium, or iridium, although platinum is preferred on account of its lower price. The composition may be applied with a brush to large surfaces of metal which could not be conveniently dipped, the surfaces being afterwards subjected to the action of a gas flame of a sufficiently high temperature. The action of the borate of lead is probably to attack the metal to be protected, and fuse the surface portion, and to aid by this fusion the union of the platinum with the metal; during this transformation the borax partially disappears, leaving upon the surface of the article coated a mixture or alloy of lead, platinum, and the metal to be protected, which forms an effectual preservative against oxidation.

STAMPING OR CRUSHING ORES.

With a view to furnish more efficient means for stamping and crushing ores and minerals some improved machinery has been invented by Mr. S. H. Cox, of St. Columb Major, Cornwall. The new machine is provided with a steam cylinder fitted with a trunk piston. The trunk is on the upper side of the said piston, and works through a stuffing in the top of the said cylinder; the said trunk, therefore, so diminishes the effective area of the upper side of the piston as to render it considerably less than that of the lower side of the same. A piston rod is connected to a cross-head in the upper end of the said trunk, and extends through the same and the piston, and through the cylinder bottom to the piston of another cylinder, which he terms a compressor. This compressor communicates by means of suitable passages with a third cylinder, which is of smaller diameter than the said compressor. In this third cylinder is a piston, whose rod is extended either through the top or bottom of the said cylinder, and is connected by a cross head or other suitable means with the stamp head which works in an ordinary coffer. Side levers are connected with the said cross head by suitable rods, and the valves for admitting and exhausting the steam into and from the steam cylinder are operated by means of tappets and bars, rods, or levers, connected with the said side levers.

High-pressure steam is admitted by the valves into the steam cylinder above the piston. One of the said valves is properly arranged for cutting off the steam at any part of the stroke of the said piston. As this piston descends the piston of the compressor also descends and compresses the air below it in the said compressor. This compressed air passes through the aforesaid passage to the space below the piston of the third cylinder, thereby raising the said piston, and with it the stamp head. During the descent of the compressor piston and the compression of the air below it the air in the space above the said piston is being expanded or rarefied, so that a partial vacuum is produced; in this space suitable inlet and outlet valves are provided for regulating this compression and expansion of the air, the said valves being controlled by means of weighted levers or otherwise. The piston of the steam cylinder and the cross head connected therewith in ascending and descending cause the said side levers to rock or oscillate, and by means of these levers an ordinary condenser and feed pump can be operated.

When the piston in the first or steam cylinder has completed a stroke, the aforesaid valves allow the high-pressure steam above the said piston to pass into the space below the same, and then by reason of the greater area of piston surface in the lower side of the same the said piston, and with it the compressor piston, will be raised, and the piston of the third cylinder will be at the same time forced down by the combined action of the compressed air above the said piston, and partial vacuum below the same, and the stamp head will strike the ore or other material in the aforesaid coffer. To prevent any injurious effect by the heat produced by the compression of air in the said condenser he places the said condenser and third cylinder in a cistern containing water.

*** The following reports were sent too late for insertion in their proper place:—

LEAD ERA.—J. A. Ede, Nov. 23: On Monday the 18th instant we commenced operations at two different points with the object of proving the continuity of the flats through the sett. In order to accomplish this we have commenced two trial shafts in a line with the strike of the beds 500 yards apart. In one of these shafts we have already intersected the upper flat, and I anticipate in a few days meeting with it in No. 2 shaft. The flat is at the shallow depth 18 ft. from surface, fully 6 ft. thick, containing all the characteristics and constituencies desirable as to future promise. Taking into consideration its proximity to surface and its composition all the elements augur well for the successful issue of the adit cross-cut when this flat is cut through extending on the north and south lode. You must remember that each intersection of the already discovered eight east and west lodes two additional pioneer points of operation will be developed. I have every hope of an early successful issue, as all circumstances concur favourably. I hope to send you a box of ore within a fortnight.

— Capt. Ede, Nov. 28: We struck the flat in the second trial shaft this morning. I am not in a position yet to state its thickness; its composition is very favourable for producing lead. We have proved by these consecutive shafts the continuance of the flat through a considerable portion of the sett. It is difficult to form a very decided opinion upon it yet, but from what I have seen my best expectations have been exceeded. We are only on the crop; 28 ft. is the present depth of the shaft. I send a rough sketch.

Petitions have been presented to the High Court of Justice for the winding up of the Ruthwaite Barytes Company, and the Servian Copper and Iron Company.

Vice-Chancellor Malins has appointed Mr. James Waddell official liquidator of the Association of Land Financiers (Limited).

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Nov. 14	Tan-yr-allt	10	£ 8 5	Nevill, Druce, and Co.
23	Court Grange	15	13 10 0	Walker, Parker, and Co.
26	Foxdale	60	14 18 6	ditto

BLACK TIN.

Date.	Mines.	Tons	c.	q.	lb.	Price per ton.	Amount.	Purchasers.
Nov. 27	Wheal Coates	6	13	0	17	£37 10 0	£249 13 2	Daubuz.

PERUVIAN TIN ORE SOLD IN LIVERPOOL.

Date.	Tons.	Price per ton.	Purchasers.
Nov. 20	3	£37 0 0	T. Bolitho and Sons.
	2½	35 5 0	R. R. Michell and Co.
27	3½	34 2 6	T. Bolitho and Sons.
	3¾	34 2 6	Redruth Smelting Co.

Mining Correspondence.

BRITISH MINES.

ABERLLYN.—John Roberts, Nov. 27: Setting Report: I have set the rise in the deep adit, to four men, at 6*l.* per fathom. The ground has much improved both for rising and the production of lead. We have had some very nice stones of this ore mixed with rich gossan this week. With the next report I will send you a sketch of this showing its relative position to the course of blende in the No. 2 level.—No. 2 Adit: By a minute survey I find that the rise in the deep adit is a little to the south of the original cross-cut through the blende, so I have put the men here to drive south instead of north; set to four men, at 12*l.* per fathom. The lode is looking well for blende. I should say that there is now nice lead coming into the north end, but we must turn our attention for the present to communicating the rise with this level for the purpose of getting away the stuff, as every place is getting filled up.—No. 1 Adit: I have set the winze here to two men, at 12*l.* per fathom. The lode is improving as we are getting more into it. The crusher house is getting on very speedily, and I expect it will be completed, weather permitting, in about a fortnight.

BLAEN CAELAN.—J. Pell, Nov. 28: The cross-cut at the bottom of the engine shaft at the 30 has this week intersected some very fine ribs of white spar, and there is a certainty of the lode being reached in a few more feet; the ground is a hard blue killas, and looks promising for lead, and I am daily expecting to report you that we have something very good here. No change in the levels east and west of winze; lode worth respectively 20*l.* to 25*l.* per fathom. The weather is frosty, and not suitable for surface operations.

BLUE HILLS.—S. Bennetts, P. Bennetts, Nov. 23: The Blue Burrow shaft, sinking below the 10, is progressing very satisfactorily; during the past four weeks 5 fms. 2 ft. has been sunk. The 30 east end on the north lode towards this shaft is worth 8*l.* to 10*l.* per fathom. The stopes at this level continue much as last reported. At the 80 at the engine shaft there is no change to notice.

BODIDRIS.—H. Hotchkiss, Nov. 27: At the new engine-shaft, sinking below the 45, the men are making fair progross, and the lode contains a good quantity of blende, but we have 4 or 5 fms. further to sink before we get into the run of ore ground gone down in the level further westward. The 45 east has slightly improved since my last. There is no change in any other part of the mine.

BWLCH UNITED.—N. Bray, Nov. 27: I have nothing particular to communicate this week, except that the shaftmen are making very good progress in sinking, and if the weather keeps open we shall soon reach the contract depth for another level; the sinking of the shaft is, as you are aware, not on the lode. The stope at the 60 has been opened westward, and looks very promising.

CLEMENTINA.—John Roberts, William Sandoe, Nov. 27: We have completed cutting ground in the wheel-pit, and shall get the masonry done up as soon as possible. In the meantime we shall cut down some ground in order to straighten the shaft for the near lift, and also make some new arrangement at the top of the shaft, which must be done, for fixing bob for the new rods. We are daily expecting the new wheel, and it shall be put up as soon as possible after its arrival.

COMBMARTIN.—John Comer, Nov. 28: The lode in the 15, driving east, presents a very encouraging appearance; it is about 4 ft. wide, composed principally of quartz, white iron, with a mixture of mundic, and a little lead. The caunter lode, in the adit driving north-west, has produced some good saving work for lead in the last 6 ft. driving; but the lode is not looking quite so well to-day, it being disordered a little by a crossing, but I think it will improve again in a few days. The ground in the adit cross-cut continues to look much the same as reported last week.

COURT GRANGE.—James G. Green, Nov. 27: We have been dressing this week at the rate of 1½ ton of ore per day, but the frost is hindering us a little to-day, and, if the new water-course was not constructed, we could not go on. There is no change to notice in any of our underground bargains. We are clearing up some waste stuff before commencing Davies' cross cut.

DE BROKE.—J. Phillips, Nov. 27: The cross-cut south through the lode at the 55 is producing stones of lead and copper ores, crystalline quartz, &c.; we are not yet got through the lode. The stope in the back of the 25 yields 40 cwts. of lead ore per fathom. The stope in the back of the 35, east and west of winze, yields from 20 to 25 cwts. per fathom. Should the weather remain open we could sample 20 tons of lead ore a week hence.

D'ERESBY CONSOLS.—John Roberts, William Sandoe, Nov. 27: We have now driven towards Cobbler's lode 11 fms. 2 ft., being nearly half of the distance. At the commencement we could drive only a little over 2 fms. per month, but the ground has so changed that we can now accomplish 4 fms. This will enable us to reach the lode very much sooner than we calculated on. We have set the end again to six men, at 9*l.* per fathom; the lode, on which we are driving, is letting out a great quantity of water. The vugh which we have reported to be in the end still continues, but not so large

D'ERESBY MOUNTAIN.—John Roberts, William Sandoe, Nov. 27: The lode in No. 1 is much the same as when last reported; a small horse in the middle, but the two parts seem to be coming together again. In No. 3 adit the rise is looking very well, with a good mixture of lead and blende. There is a large vugh in the rise, which on this lode is a strong indication of a good bunch of lead near; set to four men, at 12*l.* per fathom. In No. 4 the stope is quite as good as last week. The winze is cleared up as far as we can go for the present with the water, so whilst the No. 5 is being cleared to let down the water we shall with all possible speed communicate the top of the winze with the surface, which will be a permanent shaft for all purposes in working the No. 5, as well as below that level in the valley. In the No. 5 we have cleared and secured from 2 to 3 fms.—Surface: We have replaced the old roll of the crusher with a new one, and have just tried the stone breaker, and hope to be in full swing to morrow.

DENBIGHSHIRE CONSOLIDATED.—R. Prince, Abel Francis, Nov. 28: The lode in the 112 east looks more promising, and presents a similar appearance to what it did in the upper workings where the lead was found. In the 112 west we are beginning to find small lumps of lead. We have increased our force here, and I feel confident of meeting with success. The tribute pitch in the back of the 112 west still yields a satisfactory quantity of lead, and the same remark will apply to the one in the back of the 66. At our other operation at this part of the mine we have much pleasure in informing you that very good leadstuff is being obtained.

DERWENT.—John Morpeth, Nov. 25: Enclosed you have the setting list for December, and the following is the setting report:—Jeffries' Shaft—Middle Vein: The 96, 82 fms. east of shaft, is without change. Where we are taking down the vein in this level, 75 fms. east of shaft, it yields 16 cwts. of lead ore per fathom. Over this level we have five stopes—No. 1 is 5 ft. wide, and worth 16 cwts. of ore per fathom; No. 2 is 5 ft. wide, and worth 16 cwts. of ore per fathom; No. 3 is 4 ft. wide, worth 13 cwts.; No. 4 is 4 ft. wide, worth 14 cwts.; and No. 5 is 3 ft. wide, worth 14 cwts. The flats oves the same level, on south side of vein, look very well; present value 20 cwts. of ore per fathom. The 93, 155 fms. west of shaft, is 2 ft. wide, contains a little ore, but nothing to value. No. 1 stope, in the back of this level, is a little poorer, now 4 ft. wide, and worth 15 cwts. of ore per fathom. No. 2 for some time very poor is on the eve of a good improvement I hope; it is at present 4 ft. wide, and worth 8 cwts. of ore per fathom. No. 3 is 4 ft. wide, and yields 22 cwts. of ore per fathom. No. 4 is 5 ft. wide, worth 28 cwts. of ore per fathom; and No. 5, which is rising and stoping, is 1 ft. wide of vein, and yields 8 cwts. of ore per fathom. After getting 4 ft. higher in this rise we shall start to stope westward after No. 4 stope, when an improvement will be almost directly expected.—Sun Vein: The stope in the back of the 70, 17 fathoms west of shaft, has improved a little in appearance; at present it is 2 ft. wide, and worth 8 cwts. of ore per fathom. The 70, 29 fms. east of shaft, is 2 ft. wide, and produces 14 cwts. of ore per fathom; and the stope in the back is 2 ft. wide, and yields 13 cwts. of ore per fathom.—Westgarth's Shaft—Middle Vein: The 93, 102 fms. east of shaft, was driven last month 4 fms. 5 ft. in a good lode; at present we are taking the level 4 ft. wide, and for this width it yields 20 cwts. of ore per fathom, but we are leaving good ore on the side to be stripped down by-and-bye. The 74, 193 fms. west of shaft, is poor; vein 1 ft. wide. In the back of this level the stope is 3 ft. wide, yields 17 cwts. of ore per fathom. Pumping, drawing, and dressing at Jeffries' and Westgarth's all working uninterruptedly, and the various branches are pushed as much as possible.

DUBBY SYKE—W. Vipond, Nov. 22: I have nothing new to report from the end going east on the vein. It goes on in the plate and posts under the limestone. I do not suppose we shall see much chadge till another rise is put up.

EAST CARADON.—James Kellow, Nov. 27: To sink the winze in the bottom of the 150, on caunter lode, 3 fms. stent, by nine men, at 15*l.*; it measured 1 fm. The lode is small, with a little ore and mundic intermixed; ground by side favourable for sinking. The 150 on caunter to drive west 3 fms. stent, by six men, at 10*l.* It was driven 2 fms. 5 ft. No change to notice in the lode, but water is issuing freely from the end. The stope in back of the 90 is yielding 1½ ton of ore per fathom. We have four tribute pitches working by eight men, at 15s. in 1*l.*

EAST CRAVEN MOOR.—D. Williams, Nov. 28: The new shaft from surface is down 13 fms. below the 42; the vein in the bottom is 4 ft. wide, worth for lead ore 30 cwts. per fathom. After sinking another fathom we shall commence driving two levels east and west upon the vein, and, judging from its character and value at this depth, we shall lay open a considerable quantity of ore ground available for stoping in a very short time. Good progress is being made in driving the cross-cut south to the parallel veins. The 56 west is still in a knotty piece of hard ground; the vein is 2 ft. wide, and producing occasional stones of ore. Other points without change to notice. Our surface grating and dressing is carried on with all dispatch.

EAST VAN.—Wm. Williams, Nov. 27: The 70 west of Tempest shaft, on the south part of the lode, is driven 13 fms. The lode in the end to-day looks better, the ground being harder, and intermixed with spar and spots of lead. We have commenced the search for the north lode by resuming the driving of the cross-cut at the present end of the 25 fm. level west, which is already driven 12 *fms.*

GAWTON COPPER.—G. Rowe, G. Rowe, jun., Nov. 23: The lode in the 117, east of cross-cut, is producing good stones of ore and arsenical mundic, with a kindly appearance. We purpose to continue this driving some short distance further in the same direction before extending the cross cut further south. The cross cut in the winze and stope below the 105 is worth 10*l.* per fathom. All other points are without change.

GLASGOW CARADON CONSOLS.—William Taylor, W. J. Taylor, Nov. 26: There is no change of importance in the sinking of Elliott's shaft; we hope to get it down the required depth for 102 by the end of next week. We shall then proceed to cross-cut south to the lode, which cannot be more than 2 or 3 fms. off. We are looking forward with interest to cutting the lode at this deeper level, as at the 90 near the shaft we had an improved lode, and what looked like the top of a new shoot of ore. In the 90 west we are still driving on the branch which is taking off towards the north lode and the winze which we are sinking on it from the 78. The lode in this winze has been disordered, but it is improving again; now producing good ore. In the 90 east the ground is a little better, but the lode does not improve. We expected a good lode here before now; we are pushing it on by six men as fast as possible. In the winze from the 78 before this end we have had a good lode, but in the last few days it has fallen off in value; the ground, however, is still favourable, and we think the lode will soon improve again. No change to notice in any of the other bargains. The stopes continue about the same value as last reported. Our next sale of ore will be about the usual quantity.

GORSEDD AND MERLLYN CONSOLS.—W. Edwards, Nov. 28: The appearances in the north cross cut justify the opinion before expressed, that the more important lode is still in front of us. The south cross-cut is now undergoing a change favourable to the intersection of the lode. The rise in the 70 west looks splendid; there is a solid rib of lead above 1 ft. wide at both ends of the rise, and also in the roof. Operations at the dressing-floor are very satisfactory.

GREAT HOLWAY.—Nov. 20: Garden Shaft: We are now of opinion that a cross-cut should be put out north from the adit level, in order to extend levels under the ground that was so very productive in the upper levels; the lode dips north, and in one place where I put a set of men to cut into the north side they proved a branch containing lead and blende. Excellent progress with the engine-house. Dressing going on well.

GREEN HURTH.—W. Vipond, Nov. 22: The sinking below the incline level is still on hazle, but there is no vein or branch in the sump; it is now down a little over 5 fathoms; it yields no more water than it has done for the last two or three weeks. The stope and side on No. 3 cross vein has been yielding 6 cwts. of ore per fathom. We have been able to work the sole of the Incline level this week from shaft, as we have keep the wheel pumping regularly; I find it is about 4 fathoms from the shaft to where the ore puts on in the bottom of this level. The branch or string in Quarry level appears very weak at present. I have had two men at Bodder Mea this week; we have seen as far as where the old vein is cut in the level I think, but there are 2 or 3 fathoms of arch put in at this point, to that the top and sides cannot be seen; beyond this the level is again crushed fail with plate.

HARWOOD.—W. Tallentire, Nov. 22: Herdship: The south end has improved. We met with some very nice lead ore to-day at the bottom of the limestone; I think it is probable that the vein may now be productive higher up in the limestone, but we shall continue driving on another week or two, and then try the limestone higher up, as it will only take a day or so.

HINGSTON DOWN.—T. Richards, Nov. 28: Bailey's Shaft: In the 172 east the lode is producing 3 tons of ore, or 6*l.* per fathom, and promising improvement. In the 172 west the lode is without material change. In the stope in the back of the 172 east the lode has the same favourable appearance, and producing 8 tons of ore, or 28*l.* per fathom. In the 160, west of Nicholls' winze, the lode continues to produce some saving work. In the tributers' sink in the bottom of the 160 the lode is worth 3 tons of ore or 7*l.* per fathom. In the tributers' stope and pitch, in the back of the 110, the lode is worth 4 tons of ore, or 8*l.* per fathom. The ground in the deep adit is without change.

LADYWELL.—Arthur Waters, Nov. 28: The new shaft below the 16 is down 4¼ fms.; ground a little more favourable for progress. The 16 south is in a sparry, orey lode worth ½ ton lead ore per fathom. The 20 north and 20, south of shaft, are going out as pioneer levels, the lode yielding occasional stones of lead ore.

LOVELL (THE).—J. Prisk, Nov. 28: I am pleased to say the mine is improving throughout, especially in the 40, east of Howman shaft, where the lode in the back of the end is worth 12*l.* per fathom. The lode in No. 1 stope, in back of this level, is worth 12*l.* per fathom. The lode in No 2 stope, in back of said level, is worth 10*l.* per fathom. I am of opinion that we have the main rich shoot of tin in the mine very near us here, as the indications are very good, and to some extent to substantiate this assertion we are drawing from the eastern part of the mine to-day some as fine rocks of tin as we have ever had in the mine. We have very severe weather at present, which has put a stop to all surface operations.

MARKE VALLEY.—Wm. George, James Stenlake, Nov. 28: The ground in the 90 west, on Rosedown lode, continues favourable for driving, and without any particular change in character. The rises in the back of the 30 and 20, the 10 driving west, and the stopes throughout the mine continue to yield as was last reported.

MELLANEAR.—John Gilbert, Nov. 27: The lode in the 30, west of the cross-cut, west of Gundry's shaft, is 2 ft. wide, and worth ½ ton of copper ore per fathom. We put the men yesterday to cut into the south side of the level to prove if there is any more lode standing in that direction; we are of opinion that such is the case, as there is a very good lode in the rise in the back of the 40, only a few fathoms in advance of this end. The lode in the 40, west of shaft, is 2 ft. wide, and worth 1 ton of ore per fathom. The rise in the back of this level is worth 5 tons of ore per fathom; this rise is up 7½ fms., and the lode has been very good for all the distance. The lode in the 50, west of shaft, is 4 ft. wide, and worth 2½ tons of ore per fathom. The rise in the back of this level is worth 1 ton of ore per fathom; this rise is up 6½ fms., and is about 5 fms in advance of the 40 end. The lode in the 60, west of shaft, is 5 ft. wide, and still worth 4 tons of ore per fathom. The winze in the bottom of this level is worth 2½ tons of ore per fathom. The lode in the 70, west of shaft, is 5 ft. wide, and worth 3 tons of ore per fathom. The winze in the bottom of this level is holed to the 80; this has very much improved the ventilation of both the 70 and 80 ends. The men from this winze are put to rise in the back of the 70, west of shaft, to communicate with the winze sinking in the bottom of the 60. The lode in the 80, west of shaft, is 5 ft. wide, and worth 2 tons of ore per fathom, and looking promising for further improvement. The lode in the 90, west of shaft, is 4 ft. wide, and improved to 1 ton of ore per fathom; it is still looking very promising, and letting out a good deal of water. The lode in the 100, west of shaft, is 5 ft. wide, and producing good stones of ore, but not sufficient to value. The lode in the 100, east of shaft, is 4½ ft. wide, and worth 1 ton of ore per fathom; we shall begin next week to sink a winze just over this end, in the bottom of the 90, on a lode 4 ft. wide, and worth 4 tons of ore per fathom. The lode in the 100, west of the skip-shaft, is 2 ft. wide, and rather disordered by crossings of spar, but still worth ½ ton of ore per fathom. There is no change to notice since last report in any of our other operations. All our machinery is in good working order, and we have not yet found any increase of water in the mine from the late heavy rains.

MINERAL CORPORATION OF GREAT BRITAIN (HAFNA MINE).—Wm. Bennetts, Nov. 27: The different ends and stopes are of much the same value as reported last week. I have to-day set No. 2 adit level to drive west, at 4*l.* per fathom, and shall push on the driving of this level as fast as possible, so as to get under the run of lead ground that has gone down in the bottom of No. 1 level. We shall take down some of the lode in Nos. 1 and 4 levels to-night. If any change I will advise you.

MONYDD GORDDU.—J. G. Green, Nov. 27: The 34 has passed through the loose ground, and to-day presents a very kindly appearance, the lode being composed of a light coloured clay-slate, with ribs of quartz, and spotted with mundic and copper. The 24 west has again fallen off in value, now worth 5 or 6 cwts. per fathom. I intend starting a winze next month below this level in the middle of the run of ore, in order to ventilate the 34 and open up the ground for stoping against that level (the 34) is driven far enough. We have had some difficulty in getting trucks, hence the delay in forwarding the ore. I hope to get it all away to-morrow. Water is getting short, owing to the frost.

MORFA DU.—T. Mitchell, Nov. 28: The bottom level is still looking pretty well, and yielding fully up to previous reports. The 20 is also turning out some good bluestone, but a part of the lode at present is mixed up with patches of calc-spar, which we hope will soon work out again. Saturday next will be our setting-day.

NEW SOUTH MERLLYN.—R. Rowlands, Nov. 23: Operations in progress present most favourable indications.

PANDORA.—H. Nottingham, Nov. 27: New Lode: The 33 driving south is not looking so well in the end, as we have cut a wall, but cannot say yet whether it is the footwall or not; the lode going on south with this wall is equal to last report.—Godda.d's Lode: In the 33 the end going south looks well; we are now in a lode worth 25 cwts. of lead and 15 cwts. of blende to a fathom; I have dialled this, and find that we are not yet so far south as where we first got the lead—in the 23 south; the rise in the back of this level is worth 15 cwts. of lead and 1 ton of blende to a fathom.—New Lode: In the 23 south the end going south on the footwall side is without change; the stope (No. 2) over this level is worth 15 cwts. of lead and 1 ton of blende to a fathom; No. 1 winze in the bottom of the level is worth fully 2 tons of lead and 1 ton of blende to a fathom.—Goddard's Lode: In the 23 the end driving north is still unproductive, but showing signs of improvement; winze sinking north of shaft cross-cut is worth 15 cwts. of lead and the same of blende to a fathom. The stope in the back of this level is worth 12 cwts. of lead and ½ ton of blende to a fathom. No. 1 winze (now resumed) south of shaft cross-cut is worth 15 cwts. of lead and 1 ton of blende to a fathom. No. 2 winze south of the above is not productive enough to value.—Surface: We have rather sharp frosts, but not to hinder us; we are keeping the dressing-floors pretty well supplied with stuff, and making fair progress for a sampling by the appointed time.

PARYS MOUNTAIN.—T. Mitchell, No. 28: We have this week intersected in the 90 south a lode or course about 1 ft. wide, producing rich stones of copper ore, and the ground at this point is of a very promising character. Our object is to push forward where we shall soon enter into a very important section of ground. Saturday next will be setting-day. The ground is now a little easier for driving, and we are thinking to put a couple of men next month to help the end men to remove the stuff, as the end is getting a great distance from shaft. By doing this we shall be able to drive the end faster, and enable us to arrive at the desired point in less time. We have never seen the 90 fathom level looking so hopeful as at present.

PATELEY BRIDGE.—Charles Williams, Nov. 28: The Rake vein, in the 30 east, is looking very promising, and the part of the vein carried—5 ft.—will produce 1½ ton of lead ore per fathom; and fair progress is being made in pushing this point forward. The vein in the stope in the back over this level is 4 ft. in width, and worth 1 ton of lead ore per fathom. The improvement in Rake vein, in the 20 east, still continues, the vein being wide and massive, consisting of carbonate of lime, barytes, and good ribs of galena, worth of the latter 12 cwts. per fathom, with every appearance of further improvement. The Lumb vein, in the 20 west, is looking exceedingly favourable, consisting of gossan, quartz, and lead ore, worth 1½ ton per fathom, and the ground being easy to work enables the men to make good progress. The tribute pitches are looking better, and, on the whole, producing more ore. We are to day repairing the boiler of our engine, and hope to complete it by to morrow. Smelting going on as usual.

PENHALLS.—S. Bennetts, P. Vian, Nov. 23: The north part of the lode in the 70 east end is somewhat improved during the past week; it is now about 1 foot wide, and containing good stones of tin. The 60 east end is worth 7*l.* per fathom. The 55 east, on another section of the lode, is worth 6*l.* per fathom, and the 48 west 7*l.* per fathom.

PENNANT.—Nov. 28: To economise we are at present curtailing operations in the lower levels. I am glad to inform you that the 80 yard level is looking better. The men from the 113 I have put to open up the 40 yard level going west on the south lode. This level was extended about 25 yards west of boundary shaft, and I had been under the impression that former operations had been on instead of in the lode. This is now confirmed, and we have raised during the last week some splendid lead ore. I find also there is a good lead at the bottom of the level, and as soon as the forebreast of the level is advanced far enough I will put men to sink on it. I think this proves that the lode is still in front of our 80 and 20 cross-cuts. The 60 stopes are producing some good lead, and dressing is going on regularly, and the floors are full.

PICTON.—John Woolcock, Nov. 27: The 126 yard level still produces ore for the dressing-floors; ground is stiff for driving, and the air is bad. I now purpose sinking the engine-shaft 20 yards deeper to get at this ore with better ventilation, and less labour and expense; besides this we shall intersect the new lode which has been worked upon in the 126, from which large quantities of ore were got by the old company, and there is no reason that I know why we shall not also meet with similar results in the 146 level. This being done and the re-opening of the 126 north will in my opinion be the best means of increasing our returns more economically and for the general good of the company. There is no change worthy of remark in the sump in the 126 south; there is still a little ore, but not to value, but a most promising lode. I have confidence in this lode that it will be as rich for ore as it was when first started on. We are going on with washing as fast as possible. We have been delayed for a time in procuring materials, but we have them now on the ground. Machinery works well.

ROMAN GRAVELS.—Arthur Waters, Nov. 28: The new engine-shaft is now 3 fms. 5 ft. below the 110; ground favourable for progress. The 110 north is worth 2½ tons lead ore per fathom, but we have not yet seen the hanging-wall. The same level south is in a lode 2 ft. wide, yielding stones of ore. The 95 south is worth 3 tons per fathom. The 80 south is worth 2 tons per fathom. The 65 south is worth 1 ton per fathom. The winze below this level in front of the 80 end is down 3 fms. 4 ft. We are sinking by the side of the lode at present, but are stripping to the hanging-wall of the vein, which shows a good course of ore. We sink in this way to avoid the water. Stopes throughout the mine are yielding their usual quantities of lead ore.

SAINT PATRICK.—William Francis, Nov. 27: There appears to be some change at hand in the cross course at the 120 yard north driving, the heading wall of which is broken and somewhat disordered. I hope to be able to say more of it next week. In the 60 cross-cut north there is no alteration to notice since last week. Appearances here and in the 120 are still most favourable.

SOUTH CONDURROW.—W. Rich, W. Williams, H. Abrahams, Nov. 27: The 30 end, east of engine shaft is worth 12*l.* per fathom. We hope to communicate the 30 west with the rise in a week or two. The 40 end east is worth 5*l.* per fm. The 40 west is worth 7*l.* per fathom. The rise in the 50 east is worth 12*l.* per fm. The winze in the bottom of this level is worth 10*l.* per fathom. The rise and stope in the back of the 50 west are worth 20*l.* per fathom. The rise in the back of the 60, east of King's, carries a little tin. The 70 end east is unproductive, but the rise in the back of the 80 east, ahead of this end, is worth 18*l.* per fathom. The 80 east is improving, lode worth 7*l.* per fathom; this end is the furthest east in the mine. The rise in the 93 east is worth 18*l.* per fathom. The rise in the 93 west is worth 12*l.* per fathom. The Plantation shaft sinking below the 70 is worth 8*l.* per fathom. The 70 end west is worth 10*l.* per fathom, and looking very promising. The 70 is the furthest end west in the mine. The 80 end east and the 70 west are over 250 fms. apart, and tin in each end.

SOUTH DARREN.—Henry James, Nov. 28: The 100, east from the 90 winze, is not looking so well to-day as of late, just having entered a twitch seen in the level above for a short distances. The 100, west of shaft, has a little improved. All other points of operation are quite equal in value to last week's report.

SOUTH MOLTON CONSOLS.—John Harris, T. May, Nov. 23: The ground in the adit cross-cut is of much the same character as when last reported, the end being in a most congenial looking killas for the production of lead; our men are also making fair progress with their driving considering the difficult nature of the rock to go through, it being very jointy in every direction, but the men have advanced the end 2 fms. since last setting-day.

SOUTH ROMAN GRAVELS.—John W. Powning, Nov. 28: There is no change worthy of remark in the winze sinking below the deep adit level south, on sawpit lode, since my last report. I will send full report next week.

SOUTH TOLCARNE.—William Rich, James Knotwell, Nov. 27: The lode in the 36 end is rather smaller than usual, but the ground is easy, and we think the lode will soon open out again to its usual width—about 2½ ft. There is an increase of water in the 24 end west; the lode has a promising appearance, and we think we are getting near the cross course.

TANKERVILLE.—A. Waters, Nov. 28: Watson's engine-shaft is now 4 fathoms below the 206; ground as usual. The 206, west of shaft, is worth 2 tons of lead ore per fathom. The same level east is now up to the east end of No. 2 winze, from the 195; the end is very wet (draining the said winze), and we intend putting a pare of men to resume sinking, and another pare to rise in the 206 to meet the same. The distance to cut through is 9 ft., and we hope to accomplish this by the end of next week. We shall then have a rich section of ore ground available for stoping. There are four stopes east and west of the shaft cross cut, in the back of the 206, worth together 7½ tons of lead ore per fathom. The winze below the 192 west is worth 1½ ton per fathom. The stope in back of this level is worth 1½ ton per fathom. The stope in the 80 east, on the hanging part of the lode, is worth 2 tons per fathom. Other points without change to notice since date of the last full report. We have to-day sampled 50 tons of best quality lead ore.

TAN-YR-ALLT.—John Davis, Nov. 28: The No. 2 stope on the 22 continues as good as ever, producing upwards of 2 tons of lead ore to the fathom. We have ceased to work the No. 1 stope, which is the best we have; as, whilst the present price of lead lasts, we are only taking out enough to pay our way. The 10 tons sold to Messrs. Neville, Druce, and Co. on the 14th went away last week, and we have another parcel nearly ready, but the frost hinders our dressing operations sadly. The north end in the 22 fm. level is improving. No other change to mention.

TEESDALE.—John Slack, Nov. 21; West End Forehead: There is a slight change in this working the last 6 ft. driving, more water coming out of the beds, and a much greater strength of that watery kind of spar, but fully as much lead ore as before. We have commenced stoping the south end of the west end sump, which improves as get south; there is better ore for about 7 ft. below the level soles than that we have below that depth. There is about the same quantity of ore in the west end rise as last reported. We have suspended operations in the north end working until we get better weather for dressing lead ore. We have sent 5 tons 8 cwts. lead ore to market to-day, and if the weather keeps open another nine days we shall have a similar quantity sent off.

TEMPLE.—Nov. 27: No. 1 level continues to improve; the lode is 6 ft. wide, composed of clay-slate, quartz, carbonate of lime, and a little lead. The ground is very hard, and progress is on that account slow. The lode in the No. 2 level is still pinched up by the hard channel of ground. We expect soon to get through it, when the lode will, no doubt, be found again; it has at present a very favourable appearance, and is gradually opening out. The lode in the No. 3 continues to improve as it gets away from the hard bar passed through lately; it now produces fully 1¼ ton of lead ore per fathom. Surface operations progressing as quickly as the weather will permit.

TOLGUS CONSOLS.—W. C. Vivian, Nov. 28: There is no change to notice either in the 40 east or in the sink under the 25. I shall make it my principal object to sink down as fast as possible—say 2 or 3 fathoms more—and then commence driving east to explore the ground under the mass of metalliferous rock containing copper, lead, and blende, which we drove through at the 25 on the eastern side of the cross course.

WEST CRAVEN MOOR.—David Williams, Nov. 7: Blackhill adit level has been extended east upon the vein during the last 12 months 61 fms. 2 ft., and is 54 fms. 5 ft. east of New Blackhill shaft, and within about 55 fms. of being under the new west shaft. In the forebreast of the level we are cross cutting south to intersect the main part of the vein, which I hope to reach shortly. We have three stopes in the back of the level—No. 1 stope, 14 fms. east of shaft, in a vein 3 feet wide, worth 10 cwts. of lead ore per fathom; No. 2 stope, 32 fms. east of shaft, in a vein 3 ft. wide, worth 16 cwts. of lead ore per fathom; No. 3 stope, 12 fms. east of shaft, in a vein 3 ft. wide, worth 15 cwts. of ore per fathom. New Blackhill shaft has been sunk, cased, and divided to a depth of 14 fms. below adit, or 44 fms. from surface, and drained by 8-in. pitwork attached to the engine. The 42 is extended east of shaft 14 fms., in a vein 4 ft. wide, composed of spar and barytes, with occasional stones of ore. The 42 west is extended upon the vein 24 fms., and is under the perpendicular of the rich ore ground going down in the sole of the adit level. The vein for the last 4 fathoms on an average is 5 ft. wide, filled with gossan, spar, and branches of galena, worth fully 40 cwts. per fathom.—New West Shaft: A stope in back of the 20, 7 fms. east of shaft, is in a vein 2 ft. wide, worth 12 cwts. of lead ore per fathom. A winze be ow the 20, 6 fms. west of shaft, is in a vein 3 ft. wide, worth 15 cwts. of lead ore per fm., now being drained by Blackhill adit level. I hope soon to resume sinking the shaft to communicate with said level.—New East Shaft: The cross out south from the 20 has been extended 23 *fms.*, and intersected three veins. No. 1 vein was intersected within 8 ft. of the shaft, and the 20 west extended upon the same 47 fms. 5 ft., and communicated with the new west shaft. No. 2 vein is within 22 ft. of the shaft. The 20 west has been extended upon this vein 14 fms. The vein in the end is heaved south by a cross-course. A stope in the back of the same, in a vein 2 ft. wide, is worth 8 cwts. of lead ore per fathom. A winze below the 20, in a vein 2 ft. wide, is worth 16 cwts. of lead ore per fathom. This is stopped in consequence of the great influx of water. The 20 east has been extended 49 fms. The vein here is not looking quite so favourable, the end being in a knotty piece of ground, which may at any time open out again into a good vein. We have two stopes in the back of this level. No. 1, within 7 fms. of cross-cut, worth 10 cwts. of lead ore per fm. No. 2, within 3 fms. of cross-cut, worth 40 cwts. of lead ore per fm. All the stopes in this part of the mine are stopped for the present in consequence of the low price of lead. No. 3 vein, within 17 fms. of shaft, a level has been extended east and west upon its course 35 fms. General Remarks: We have built a new wheel case and put in a new water-wheel at the Blackhill dressing-floors to work self-acting jiggers, and have connected a line of flat-rods to the engine, with 8-inch pitwork, in New Blackhill shaft. We have raised and dressed during the year 125 tons of ore, and have other 10 to 12 tons in course of dressing. Had the new floors been completed we should have nearly doubled the returns, and with a better price for lead would, I have no doubt, have realised a profit upon last year's working. By extending the 42 east and west upon the Blackhill vein, to get under the ore ground going down in the sole of the adit level, and driving Blackhill level east under new west shaft and new east shaft—which will give 18 fms. of additional backs high and dry for stoping, upon the valuable runs of ore ground left standing in those shafts—I feel confident that our new level will prove a successful and profitable investment.

West Craven Moor will prove a successful and profitable investment.

WEST CRAVEN MOOR.—D. Williams, Nov. 28: In the cross-cut south from the end of Blackhill level we have intersected several fliers off the vein, with spar and occasional stones of lead ore. In the 42, east from new Blackhill shaft, the vein is nipped, but will I have no doubt open out again shortly. In the 42 west vein is nipped, but will I have no doubt open out again shortly. In the 42 west the vein is 6 ft. wide, worth 40 cwts. of lead ore per fathom. The stopes through out the mine are of the same value as reported in my last. We have 20 tons of pig-lead after paying royalty for sale

WEST CWMYSTWITH.—John Davis, Nov. 25: Monthly Report: At the bottom of winze we have driven about 9 fms. on the course of the lode east and west; the lode here is very wide, and we have not stripped it down to its full width yet; the part we have taken down contains about 2 tons of sulphur, 10 cwts. of blende, and 15 cwts. of lead ore per fathom. Next setting day (Saturday next) this part of the mine will be set at so much per ton, and I think it can be done at a price that will leave a small profit. The tributers above this point continue to break some good ore. At present they have to keep a large quantity of the stuff under their feet, and we shall not be able to get it all out for another week. The cross-cut north is still in the diagonal lode before referred to, and although we have not as yet met anything of importance here, I think it should be continued a few fathoms further, as it thoroughly explores this part of the mine. At Penshafte the western drivage has intersected the cross cut shown on tracing sent with last report, and, as I anticipated, the old workings have been extended back to this point, and there are evidences of very large quantities of orestuff having been removed from here, and there is some very good ore to be seen here now in one or two places which are accessible. The old workings here—same as those inspected by Mr. Gullachsen—are on a very steep grad set, and very crooked and narrow. I have, therefore, thought it best to extend the new level in a straight line and on dead level. In following this course we shall be sometimes in and sometimes out of the old workings, and at the re-minus will be about 2 fms. below them. This work of extending this new level to the modern workings will take some seven or eight weeks to complete. When this is done we shall be in a position to bring out some very good ore. stuff. The eastern end, being carried on at present under some difficulty for want of air and proper exit for orestuff, continues to look very well, and for the last 8 or 9 fms. has passed through a continuous course of ore, which will pay well for working as soon as we have got the new level referred to completed.

WEST GODOLPHIN.—John Pope, Nov. 27: Weekly Report: Wilson's lode in the 80, driving west, is worth about 6*l.* per fathom for the part of the lode carried. This will apply also to the lode in the same level driving east. The lode in the winze sinking in the 70 west is worth 8*l.* per fathom for the part of the lode carried. As soon as this lode is holed to the 80 we shall be able to open the whole width of the lode in the winze and level, and ascertain its full value. The lode in the 70, driving east is worth driving west, is worth 6*l.* per fathom. The lode in the 70, driving east is worth 4*l.* per fathom. The caunter lode in the 70, driving south, is worth 4*l.* per fathom. The lode in the stopes in the bottom of the 60 is large, but the quality of the tin-stuff is not so good as it was some time since. There is not sufficient done in the stopes in the bottom of the 70 to enable me to report their value. Our water-stamps are working all the time, and the steam-stamps by day, and occasionally by night also, but the tin has not been coming out at the stamps so well as I could desire this month. I am afraid out tin sale this month will be a little less than last unless we get an improvement very quickly. I will send full report in

time for the committee meeting on Tuesday next. Our machinery is all working very well.

WEST PATELEY BRIDGE.—D. Williams, Nov. 28: No. 2 Shaft: In the 20 east the vein is 2 ft. wide, composed of spar, barytes, and carrying a good mixture of lead ore. A stope in the back of the level, by two men, in a vein 2 ft. wide, worth 15 cwts. of lead ore per fathom. In the 28 east the vein is 3ft. wide, and producing good branches of ore, worth about 10 cwts. per fathom. In the 28 west we are driving to reach the vein, which has been heaved north by the cross course. In the cross-cuts to the parallel veins we have intersected a branch of spar containing spots of ore.—Craven Cross Shaft: This shaft is down 54 fms. 1 ft. 6 in. below the surface, and will be level with the 56 the latter end or the week. I hope to be able to commence driving east to communicate with the 56 on Monday next. The vein in the bottom of the shaft is fully 4 ft. wide, between two well defined walls, consisting of gossan, limespar, intermixed throughout with branches of ore of fine quality, a sample of which I have forwarded to the office to-day. In the 56 west the vein is 4 ft. wide, carrying a solid leader of ore 3 in. wide.

WEST ROSKEAR.—Hugh Stephens, William Bennetts, Nov. 28: The lode in the 36 west is larger than last reported, and much the same for mineral. The lode in the winze sinking below the 24 over this end is 6 ft. wide, with a leader of blende and a little lead. The lode in the 24 west is chiefly mundic. We are daily expecting to communicate this with the level east of Stephens' shaft, when these men will resume driving the 24, west of Stephens', in a very fine lode. Stephens' shaft is down about 8 ft. below the 24; the south part now being carried contains a good mixture of lead, and by the end of the week we hope to be carrying the north part also, and we expect a good yield of copper.

WEST TANKERVILLE.—Arthur Waters, Nov. 28: The 36 south is in a lode 6 ft. wide, and worth at present 12 cwts. of lead ore per fathom. The stope in the back of this level south is worth 12 cwts. of lead ore per fathom. We have five tribute pitches at work, and the men are getting fair wages. We have to-day sampled 25 tons of lead ore, for sale next week.

WEST VOR.—S. Harris, Nov. 28: The rise above the adit level is up 8 fms. We have about 2½ fms. more to hole to the shaft. We are driving east and west of the adit cross cut on the south lode, which is fully 3 ft. wider in each point. It is a most compact lode, producing mundic, blende, and a little tin, but not enough of the latter to save it for tinstuff, bnt a more promising lode I never saw at the depth.

WEST WHEAL TOLGUS.—Nov. 27: The ground in Taylor's shaft is, we think, changing for the better; we hope to sink quite as much this week as last, notwithstanding the shaftmen were hindered yesterday and last night in putting in timber at and about the 50. The lode in the 145 end west has improved; it is 4 ft. wide, yielding from 4 to 5 tons of good ore per fathom; there is still more lode standiug to the north side; we can see there is ore in it. There has not been any lode taken in the 145 end, east of the great cross-course, neither will there be for some little time; we want to get on further to drain it. The stopes are just the same as last reported. The lode in the 135 end west is 2 ft. wide, yielding 2 tons of ore per fathom. The lode in the winze under the 135, we t of the great cross-course, is yielding 5 tons of ore per fathom. The No. 4 winze under the 135, west of little cross-course, is not so good as last reported; it is yielding 5 tons of ore per fathom; the lode appears to have made a splice. The 145 end is about 3 fms. east of this winze. The stopes in the back of the 135 are holding on very well.—Richards' Shaft: The men have not yet finished their bargain in casing and dividing the shaft. The lode in the 65 west is still small, but the water is increasing.

WHEAL CREBOR.—J. Andrews, Nov. 26: In the 120 east we are still driving by the side of the lode. The stopes in the back of the 120 are of the same value as reported last week. In the 108 east we have just passed through a small cross-course, and at the present time the lode is jn rather a disordered state. There is no change in the 72 or 48 ends, nor is there any change in the new shaft.

WHEAL GRENVILLE.—T. Hodge, Nov. 26: We have been engaged during the past week shoading down the old lode at Goold's shaft; to-morrow we shall start to sink again on the flat lode. The old lode is in two parts; the north part is close on the flat lode, the other part is going off south fast. The 150 east end is producing stamping work; we have several fathoms more to drive here to catch the run of tin gone down in the level above. We have started a rise in the back of the 150, west of Goold's, in a lode worth 12l. per fathom. The rise in the back of the 150, east of Rodda's stope, is worth 10l. per fathom. The 140 east end is not quite so productive; the leaden part of the lode is small. The 130 east end is worth 10l. per fathom. The winze sinking below the said level is worth 10l. per fathom; we have about 6 ft. more to communicate this with the rise in the back of the 140. The 140 west is worth 7l. per fathom, and likely to improve. The 140, east of the western shaft, is worth 8l. per fathom. The 130 east is poor. I see no change in the stopes worthy of any note, except in Ward's stope in the back of the 150, which is not looking so well. We expect to finish roofing the boiler-house by the end of the present week. The boiler for Goold's engine will be completed in another week, when we shall at once put it in its place, and get it to work as quickly as possible. We have got out the second boiler from the old engine, which, after going through some repairs, will be fixed at the stamping-engine.

WHEAL UNY.—W. Rich, Matt. Rogers, Nov. 26: The 172 west yields a little tin. The 160, west of incline, is worth 9l. per fathom. The 150 west carries low quality tinstone. The 150, east of King's, is unproductive. The rise in the back of the 130 west is worth 10l. per fathom. The 130 end, east of King's, carries good stones of tin. The stope in the 60, west of incline shaft, is worth 10l. per fathom.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,

MINEOWNERS, STOCK AND SHARE DEALERS, &c.

1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to *recommend* mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fornightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

The letter of Capt. Absalom Francis reached us so late last week that we published it without comment, and we have now that of his brother William to compare with it. In our remarks in the Journal of Nov. 16 we stated that, so far as the extract from the report by Capt. William, published by "Aristotle," was concerned, it simply dealt with generalities that we had neither questioned nor disputed, and that, perhaps, the true test might be found at the omission represented by dots. Capt. Absalom boldly and openly asserted that the best ore ground in Pant-y-Mwyn was under water, the machinery totally inadequate to cope with it, and the mine worked, "weather permitting." In all this he has proved singularly correct, for the simple reason that he spoke out without reservation. In the *extracts* given of the report of Capt. William, there was nothing to indicate the above facts beyond *dots*, and the omission probably he was not responsible for. Our charge was based upon the report of Capt. Absalom Francis that the machinery was totally unable to cope with the water as the mine then was, and without reference to other workings or other contingencies. It was worked, as we said, from "hand to mouth." In the month of September the secretary denied this, and wrote in the Journal that the pumps were worked by "efficient steam machinery." Early in the month of October Capt. Hughes also denied our charges as to the machinery, and added that he was returning near 60 tons of lead a month, at a cost of 200*l*.—that is to say, he led the readers of the Journal to infer that he was making 400*l*. a month profit—and would go on gradually increasing it." How does even William Francis support the statement of the secretary and agent? He admits that to develope the *present discovery* in new ground will require the erection of a powerful engine, and this is an admission of the justice of our own criticisms in regard to the present machinery of a mine which was liable to be flooded any moment, but which, as we said before, was being introduced here as a dividend-paying property, returning 60 tons of ore a month at a cost of 200*l*.!

In reference to the alleged returns of 60 tons a month we challenged the secretary and Captain Hughes in our last remarks to show that they had been even 30 tons per month, and the challenge has not been accepted. Our information was that the sales and deliveries of lead had very little exceeded what was said to have been in stock on June 30, and until the returns are published this will remain our belief. In the early part of this discussion we said that we had no personal feeling whatever in calling attention as we did to the machinery and management of this mine, of which as a speculation we then spoke, and have all along spoken, in favourable terms; but our motives, as well as our facts, were impugned by officials and by anonymous writers, and we have been compelled to vindicate the one and substantiate the other. It was very well known to the principal shareholders, and to those probably who have attacked us, that owing to graver charges than any we have made a committee of investigation was appointed in Liverpool in September, 1877, and were we to publish their report, signed by five of the principal shareholders, it would be seen how very mild in comparison have been our own criticisms. We have no wish to publish it, however, unless it becomes necessary in our own further defence.

We will only at present give the concluding paragraph of the committee's report:—"We are fully satisfied that there is not a better mining property or a more excellent opening for a legitimate trade to be met with, but we are also decidedly of opinion, while we have every confidence in the general body of the directors and in the secretary, that under the present management the mine *can never be made a financial success, and its splendid advantages are being frittered away*," signed—W. M. Cotter, James Phillips Court, John Davies, J. Elias, Edward John Hale.

ABERLLYN.—Good lead was met with on Saturday in the rise in the deep adit. A shareholder who has just returned from the mine greatly pleased with his visit, tells us 200 tons of blende have already been raised, and the agent persists in his estimate to make 2000*l*. profit from the blende alone the first 12 months after the machinery starts, which will be in less than three months.

MORFA DU.—It is very difficult to arrive at the exact value of what are called "complex" ores like the bluestone of this mine. If all the constituents could be got out the ore would be very valuable, as it is allowances have to be made. We may state, however, that nearly 500*l*. worth have been sold, and contracts entered into for a regular monthly supply, commencing in about two months at a remunerative price. By that time we hope the returns will be near upon 200 tons per month.

We expressed a strong opinion before the Morfa Du Company was formed that some large deposit of mineral would probably be found eventually underneath the bluestone, and that this compound itself, when reached at an expense of a few hundred pounds, would not only pay the expenses of sinking for that and other minerals, but leave a good profit besides, thus rendering it a safe and fine speculation; and considering the short time it is since the bluestone was reached, we are glad to see our first prediction so speedily fulfilled. We stated, if we remember rightly, that it would take about nine months to reach the bluestone so as to make returns, and that the cost of that period would be about 700*l*. The point was reached in eight months, and at a cost of about 730*l*. To the present time the total costs at the mine have been 1133*l*. 1s. 11d., and 500*l*. worth of stuff sold! In order to pay Parys Mountain for the mine, the shares were made 1*l*. each (limited), and payable by instalments of 2s. 6d. each. The instalment now due makes the shares 17s. 6d. paid; and the buyer should look to this. The last 2s. 6d. will be due in about three months.

PARYS MOUNTAIN.—At no time since the 90 cross-cut south was commenced has the ground looked so promising as it does now. A small course, 1 ft. wide, has been cut this week, containing rich stones of ore, and the agents are very sanguine of success; but hope deferred, so long as in this case, maketh the hearts of some sick and unbelieving. The expenses at the mine are very small in comparison to what they were, and this 90 cross-cut is the only point in progress. The precipitation pits, of course, go on; and there are besides good sales of native and other ochres. Should sulphurmundic become in demand, as it is thought it will, for the electric light, Parys Mountain has large quantities of it with the copper ore. The Carreg-y-doll lode yields ore 3½ per cent. copper and 20 to 25 per cent. of sulphur.

The Bassets and mines in their transition state next week.

SATURDAY, NOV. 23.—Market continues firm. Van, 16 to 17; Great Laxey, 16 to 17; Roman Gravels, 6 to 6¼; Aberllyn, 11 to 13; Tankerville, 3 to 3¼; Dolcoath, 29 to 31; South Frances, 6¾ to 7¼; South Condurrow, 10¼ to 11; Tincroft, 9 to 10; West Frances, 3½ to 4; Agar, 4 to 4¼; Grenville, 3 to 3¼; Peevor, 6 to 6½; West Tolgus, 40 to 42; Mark Valley, 15s. to 20s.; Parrys Mountain, 4s. to 6s.; Santa Barbara, 37s. 6d. to 42s. 6d.

MONDAY, NOV. 25.—Market very active for tin and lead shares, at an advance. Van, 17 to 18; Great Laxey, 17 to 18; Aberllyn, 11 to 13; Tankerville, 3 to 3½; Roman Gravels, 6 to 6¼; Glenroy Lead, 10s. to 15s.; South Roman Gravels, 2s. 6d. to 5s.; Pateley Bridge, 3½ to 4; Leadhills, 2 to 2¼; Clementina 1½ to 1⅝; East Van, 1¼ to 2; Dolcoath, 30 to 32¼; Caru Brea, 36 to 38; Tincroft, 9¼ to 10½; South Frances, 7 to 7⅛; South Condurrow, 10⅛ to 11; West Frances, 4 to 4¼; Grenville, 3 to 3¼; West Basset, 3 to 3⅛; Agar, 4 to 4¼; Peevor, 6 to 6½; West Tolgus, 40 to 42¼; Parys Mountain, 4s. 6d. to 6s. 6d.; Morfa Du, 17s. 6d. to 20s.; Santa Barbara, 37s. 6d. to 42s. 6d.

TUESDAY, NOV. 26.—Market firm, and prices about the same as yesterday.

WEDNESDAY, NOV. 27.—Although there is not much business doing the market continues very firm for both tin and lead shares. Van, 17 to 18; Great Laxey, 17 to 18; Roman Gravels, 6¼ to 6¾; Tankerville, 3⅛ to 3⅜; Aberllyn, 11 to 13; Clementina, 1½ to 1⅝; Glenroy Lead, 10s. to 15s.; East Van, 1½ to 2; Leadhills, 2 to 2¼; Pateley Bridge, 3¼ to 4; Roohope Lead, 10s. to 12s. 6d.; West Chiverton, 2 to 2½; Carn Brea, 36 to 38; Dolcoath, 30 to 32; South Condurrow, 10⅛ to 11; South Frances, 7 to 7⅛; Tincroft, 9½ to 10⅝; West Basset, 3 to 3⅛; West Frances, 4 to 4¼; Agar, 4 to 4¼; Grenville, 3 to 3¼; Peevor, 6 to 6½; West Tolgus, 40 to 42; Marke Valley, 15s. to 20s.; Devon Consols, 20s. to 25s.; Morfa Du, 17s. 6d. to 20s.; Santa Barbara, 37s. 6d. to 42s. 6d.

THURSDAY, NOV. 28.—Market again firm at yesterday's prices. Tin standard up 2*l*. per ton.

FRIDAY, NOV. 29.—Market rather easier.—Carn Brea, 35 to 37; Dolcoath, 30 to 32; South Frances, 6⅛ to 7; Tincroft, 9¼ to 10; West Basset, 3 to 3⅛; Grenville, 3 to 3⅛; Peevor, 6⅛ to 6⅜; Van, 17 to 18; Great Laxey, 17 to 18; Aberllyn, 11 to 13; Morfa Du, 17s. 6d. to 20s.; Roman Gravels, 6¼ to 6¾; Tankerville, 3 to 3¼; Leadhills, 2 to 2⅛; Parys Mountain, 5s. to 7s. 6d.; Marke Valley, 15s. to 20s.; Devon Great Consols, 20s. to 30s.; West Tolgus, 40 to 42½; Santa Barbara, 37s. 6d. to 42s. 6d.; Chontales, 11s. to 13s.

CHONTALES CONSOLIDATED MINING COMPANY.—Although the report presented to the meeting on Thursday showed a loss on the working of the year, the accounts received from the mine since the date of the report encourage the hope that the patience of the shareholders will shortly be rewarded, and that before long the profit and loss account will show a handsome balance on the right side. In July a profit was made of 177*l*., in August a profit of 280*l*., and in September a profit of 604*l*., making altogether a profit of 1063*l*. for the three months. The plant and machinery have been thoroughly overhauled and put in efficient working order; the directors have decided to send out a second portable steam-engine, and they are also considering the desirability of sending out some improved stamps to do a greater amount of work. The board seem to have been very fortunate in the selection of their new manager, Mr. White. Up to the present time he has succeeded in doing all that he promised to do, and he seems to be exercising sound judgment in the working and general supervision of the mine. Mr. White considers that for the present the best policy is to concentrate all energy in forwarding the development of the upper mines, all of which present very encouraging features; but as soon as the resources of this portion of the company's property are in course of being successfully realised the time will probably have arrived for seriously considering the opening out of the Pavon property. It may be mentioned that out of the 5000*l*. of debentures which the directors decided to issue in July last 1175*l*. have been placed, but the directors consider it would be to the benefit of the company that the remainder should be taken up, so as to place the board in the possession of ample funds to work the mine without stint.

ECHOES FROM THE MINING MARKET.

Several symptoms are apparent leading us to expect that a better time for the mining market is at hand. Tin, copper, and lead are all better, and shares which for many months past have been almost utterly neglected, are springing into notice and demand. Almost without exception tin and copper shares have actually advanced and many lead shares have become sensibly dearer. Thus we see a very different state of affairs to that ruling a month since, and if the general rise does not take place too quickly, and so bring about a natural reaction, we may fairly hope for a permanent and substantial improvement. During the week the tin standards have been advanced another 2*l*. per ton. This is the fourth successive rise that has taken place within a period of a few weeks, and in Cornwall it is still firmly believed that the lowest price has been seen, and that better times are approaching. As a consequence the local markets are buoyant, and buyers abound.

A meeting of Carn Brea will be held on Tuesday next. It is said that no call will be made, and that owing to the better price of tin the mine can now about meet cost. South Frances, after being 7*l*., buyers, fell to 6¼ to 6¾ (the closing price), in consequence of rumours of an accident to the pumping machinery. The damage turns out to be easily remediable, and all is expected to be made right very shortly. A better demand has been apparent for Wheal Jane shares and for West Frances, in the latter case in consequence of an improvement at the mine. Of copper mines, a dividend of 20s. per share is announced from South Caradon; the profit on the quarter amounts to 502*l*. After paying the dividend (512*l*.) a credit balance of 2532*l*. has been carried forward.

In lead mines, the principal demand has been for the shares of the leading ones, but several of the low-priced properties show an upward tendency. Herodsfoot, which has paid such large profits to its shareholders—between 40*l*. and 50*l*. per share—is now undergoing a crisis, as it is believed that to resume profitable working a large sum must be expended in sinking the shaft below its present depth of 205 fms. Many of the shareholders are adverse to this expenditure, and it is a question whether the property may not have to be sold. It is hoped that the lord of the land will lighten the dues, so as to assist in lightening the burden for the new work if it is undertaken by the shareholders.

We understand that some exception has been taken to our remarks last week upon the balance-sheet of Tankerville, on the ground that although the accounts show a balance of 414*l*., liabilities over assets, a sum of about 1000*l*. was receivable for ores sold since the accounts were made up. We can only say that in dissecting a balance-sheet account can only be taken of what actually appears in that document, and so far from the sum of money received since the issue of the accounts being entitled to be set against what there appears a balance of indebtedness, the costs are charged till August, and the sales are credited to October. Against the November sale there would, therefore, be owing the September and October costs and current expenses, an amount which cannot be very far short, we presume, of 2000*l*. It is correct, however, that in the balance-sheet five months sales have been credited against six months' costs. JAMES H. CROFTS.

THE WEEK.

SATURDAY, NOV. 23.—The last few days have certainly made a marked improvement in home mining shares. Van and Great Laxey that were a short time back offered at 14*l*., now fetch between 17*l*. and 18*l*. West Chiverton, after touching 15s., now cost 2¼. A large rise has also taken place in the leading tin mines, some of the dealers speak sanguinely of South Frances, West Frances, and Wheal Grenville. It is not likely that a rise in Linares, Fortuna, and Alamillos will be much longer delayed. The railway and foreign departments showed little alteration. It is worth noting, however, that Brighton, A, has receded to 138, and Great Eastern to 51¼.

MONDAY.—Richmond advanced to 10½; ever since the Probert meeting shares have been very tight at a little over 10, and it is expected they will be found rather scarce on settling day. Kapanga shares showed a weak tendency, and declined 4s to 15s. Gold Run and Port Phillip were enquired for. South Frances were wanted at 7*l*., and West Frances 4. Business was done in West Chiverton at 2¼. In banks, City fell to 14*l*.; this is one of the unlimited concerns. General Credit, 5½ to 5¾; Hudson Bay, 10¾ to 11¼; Tharsis Sulphur, 22½ to 23; Credit, A, ⅞ to 1; United Discount, 4 to 4⅛; Royal Aquarium, 4⅝ to 4¾.

TUESDAY.—Several foreign bonds having more or less something of a future are now at rather a low level, among them being Spanish at 14¼, Bolivian at 26¾, Greek at 17, Mexican at 8¾, Colombian at 46, and Turkish, 1858, at 21. None of these could possibly do much harm to look up, while in at least two of the number there is a good chance of a 50 per cent. rise coming off. City Bank shares continue to be offered, and are now to be had at a little over 13¾, but cannot be recommended, and are still at a premium of 35 per cent. Fortuna and Linares among mines were in good demand, and higher.

WEDNESDAY.—Grand Trunk securities having been put down for the last few days by speculative sellers were found scarce at to-day's settling, and experienced a rebound. The First Preference advanced 1, to 36; and the Second 10s., to 25. The ordinary and Third Preference had a more moderate rise, but left off firm at 6¾ and 11¾ respectively. Mexican Railway, 1¾ to 1⅝; ditto First Preference, 6⅛ to 7; Richmond, 10¾ to 10⅛; New Quebrada, 1¾ to 2; Devon Consols, 1⅝ to 1¾; East Van, 2 to 2¼; Tankerville, 3 to 3¼; Penstruthal, 4s. to 5s.; Pary's Mountain, 4s. to 6s.; Positive Assurance, 4s. 6d. to 5s. 6d.

THURSDAY.—Comparing the making up prices with those of last account, an important improvement is shown in several mines. Van and Great Laxey have both advanced from 15*l*. to 17*l*. West Chiverton has risen from 15s. to 2*l*., and Cape Copper from 27½ to 29. In railways the greatest advance has been in York, A, *from* 105½ to 108, and in North British from 87¾ to 91. Turkish, 1871, has improved 51¼ to 53½. The rise in Dover, A, has been 1¾, from 123¾ to 125.

FRIDAY (*Opening*).—Railways and foreign bonds are dull. Brighton, A, are down to 137¾, and York, A, to 107½. Unified are dull at 84⅜, Turks 11 5-16ths to 11 7-16ths; Ottoman Bank, 8¾ to 8⅞. In mines Richmonds are a good market, and in demand at 10¾. Colorado wanted, at 2*l*. Roman Gravels, 6¾ to 6¾; Devon Consols, 1 to 1⅛; Van, 17 to 19; Don Pedro, 8s. to 10s.; Kapanga, ⅝ to ¾. ——*Two o'clock.*—Richmond has been dealt in at prices varying from 10⅝ to 11, and the quotation is now firm at 11 to 11⅛; it is understood the office have no fresh intelligence from the mine. On the market it is said that "Glasgow buying" has sent them up, others hint at an important discovery. Bombay Gas, 5¼ to 6; European, 10 to 11; Monte Video, 12 to 13; Ottoman, 2 to 2⅛; Oriental, 6 to 6¼. In railways, Caledonian and North-Eastern are each a quarter better. Colorado shares are now 2⅛.——*Four o'clock.*—There is a slight recovery in prices. Unified are a quarter higher, and Turkish Fives 3 16ths. Richmond is now quoted 11¼ to 11⅜, and Colorado 2¼ to 2⅜. British are down ⅝, while District are ¼ better. Grand Trunk First Preference, 36 to 36⅜; Second, 25 to 26⅛; Third, 11⅛ to 11⅜. Palmer's Shipbuilding, 11¼ to 12; John Bagnall, ⅝ to ¾; Darlington Iron, ¾ to 1¼; Positive Assurance, 4s. to 6s.; Pelsall Coal, 2½ to 3¾; Chillington Iron, 2¾ to 3; Chapel House Colliery, 2¾ to 3; Bilson, 2 to 3; Newport Abercarn, 4 to 4½. During the last few days there has been some enquiry for Gold Run, which are said to be worth buying. FERDINAND R. KIRK.

THE DISCOVERY OF GOLD IN INDIA.—A meeting of the Moyar Coffee Company was held at the offices in Nicholas-lane, on Tuesday. The report adopted by the meeting stated that last year the company leased a portion of their property to the Prince of Wales Quartz Reef Gold Prospecting Company for a short time, with the object of testing the gold prospects of the company, and the results were of a most important character as affecting the material interests of the company. The Prince of Wales Company reported that from 20 tons of quartz they had obtained and crushed 45 ozs. 6 dwts. of gold. They had succeeded in proving the paying capabilities of Alpha reef. Messrs. Smith, Fleming, and Co., on behalf of Messrs. W. Nicol and Co. (of Bombay), made overtures to the directors for the exclusive right of mining the gold on their property, but the failure of both firms had brought those negociations to a close. The board knew the company possessed a large area of reefs, and they stated that Mr. Brough Smythe (the Minister of Mines in the Government of Victoria) had been deputed to thoroughly inspect the country, and from the company's lands gold was produced in small but perfectly visible quantities. The Chairman (Mr. A. Hall) congratulated the shareholders on the fact that large quantities of gold had been recently discovered on their property, and in reply to a shareholder, who asked whether the Government reserved the mineral rights of the land, Mr. Hall said he consulted all the title deeds, and there was no reservations whatever in that respect. He had also consulted gentlemen in the India Office, and the Government had not made and were not likely to make any claim to those rights. After some discussion with regard to suggestions as to the forming of a new company or altering the present Articles of Association to enable the company to deal with and develope their gold prospects, it was resolved to form a committee of gentlemen possessed of mining knowledge to thoroughly investigate the subject. The following gentlemen were appointed on the committee:—General Gossett, Messrs. John Wilde, S. O. Honson, James Gordon, and John Brown.

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, NOV. 29, 1878.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde..	2 2 6-	—
,, Scotch, all No. 1 ...	2 4 0-	3 5 0
Bars, Welsh, f.o.b. Wales	4 17 6-	5 0 0
,, ,, in London.	5 10 0-	5 12 6
,, Stafford., ,, .	6 10 0-	7 0 0
,, in Tyne or Tees ...	5 5 0-	5 10 0
,, Swedish, London ..	8 15 0-	9 0 0
Rails, Welsh, at works..	4 15 0-	—
Sheets, Staff., in London	8 0 0-	8 5 0
Plates, ship., in London	6 12 6-	—
Hoops, Staff.	7 5 0-	7 10 0
Nail rods, Staff. in Lon.	6 0 0-	6 10 0
STEEL.		
English, spring	13 10 0-	19 0 0
,, cast	30 0 0-	40 0 0
Swedish, keg	14 0 0-	—
,, fag. bars.	15 0 0-	—
LEAD.		
English, pig, common...	14 15 0-	—
,, ,, L.B.....	15 0 0-	15 2 6
,, ,, W.B.	16 0 0-	—
,, sheet and bar..	15 12 6-	—
,, pipe	16 10 0-	—
,, red	18 10 0-	19 0 0
,, white	24 0 0-	26 0 0
,, patent shot ...	19 10 0-	—
Spanish	14 10 0-	14 15 0
NICKEL.		
Metal, per cwt.	18 0 0-	20 0 0
Ore, 10 per cent. per ton.	24 0 0-	26 0 0
QUICKSILVER.		
Flasks of 75 lbs., ware..	6 12 6-	—
SPELTER.		
Silesian	16 10 0-	16 15 0
English, Swansea	17 0 0-	17 10 0
Sheet zinc	20 10 0-	—

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	68 0 0-	69 0 0
,, bars ,, ...	69 0 0-	70 0 0
,, refined.....	70 0 0-	71 0 0
Australian	64 10 0-	—
Banca ..... (nom.)	67 0 0-	—
Straits	64 10 0-	—
COPPER,		
Tough cake and ingot.	63 10 0-	64 0 0
Best selected	64 10 0-	65 0 0
Sheets and sheathing .	69 0 0-	—
Flat Bottoms	72 0 0-	73 0 0
Wallaroo	68 10 0-	69 0 0
Burra, or P.C.O.	66 5 0-	66 10 0
Other brands	64 0 0-	—
Chili bars, g.o.b.....	58 10 0-	—
PHOSPHOR BRONZE.		
Bearing metal	£105 0 0	
Other alloys	£110 0 0-	125 0 0
BRASS,		
Wire	7 d.-	7½d.
Tubes.....	7¼ -	7½
Sheets	8 -	8¼
Yel. met. sheath. & sheets.	5⅞ -	—
Nails composition.....	8 -	8½

TIN-PLATES.*	per box.	
Charcoal, 1st quality ...	1 1 6-	1 2 0
,, 2nd quality ...	1 0 0-	1 1 0
Coke, 1st quality	0 16 0-	0 16 6
,, 2nd quality	0 15 0-	0 16 0
Black .....per ton	16 0 0-	16 10 0
Canada, Staff. or Gla., at Liverpool	11 0 0-	12 0 0
Black Taggers, 450 of 14 × 10	30 0 0-	—

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—Foresight is such an indispensable qualification in every business man that any idea, subject, or communication of the least possible value calculated in any way to shape, direct, guide, enlarge, improve, or enlighten the understanding needs no apology for its introduction, and, therefore, we purpose to contribute some remarks with that object, or, at least, to draw particular notice to what may serve to be useful and beneficial in forming a sound opinion of the future course of metals, and we think the best way to accomplish this will be by simply stating a few plain facts, which cannot fail in due time to exercise a controlling influence over the market; but before directing attention to the future it is expedient to touch momentarily upon the past, and especially as regards the causes of the prolonged depression. We have no intention, however, of going through the whole catalogue of disasters and misfortunes of the last two or three years, as they must be still fresh in the minds of everyone, and there is no fear of their being easily forgotten. Nevertheless, by keeping them constantly before us they will doubtless materially assist in our arriving at a right and proper conclusion respecting the future.

In considering the nature of the causes of the depression, it will be found that many of them have not been of common occurrence, but of rare and exceptional character, and seldom or never following so closely together as to form a long succession of calamities, and this is undoubtedly a hopeful and encouraging feature, and it is so far satisfactory because it goes to show that the depression has arisen more from outside influences, such as political, financial, and agricultural failures and disturbances, than from any general unsoundness within commercial circles, such as over-trading, rampant speculation, or incurring unjustifiable risks; but, on the contrary, there is much credit due to the community at large for reducing their liabilities and expenses as soon as they saw the unfavourable turn which business had taken. If great caution had not been observed there would have been a great collapse and universal ruin, but fortunately we have escaped a terrible commercial crisis, and there have been no failures of importance beyond the Glasgow clique. Some of the back influences no doubt continue in operation, and our markets may for some little time be affected by them, but the effects are gradually being overcome, and business now is more likely to suffer from timidity and nervousness on the part of buyers than from uneasiness or apprehensions of danger, although if hope can be derived from the present state of things it will soon lead to the restoration of confidence. Of course, in our very limited space we can only just touch upon a few leading topics, but we trust they will prove sufficient for a pretty correct opinion to be formed of future prospects. Well then, as there is little doubt but what past evils are well nigh spent, and that they cannot do much further mischief, and consequently cannot present any serious obstacle in the way of a revival, they may be dismissed as incapable of adding any additional burdens or creating any threatening alarms; nevertheless our markets (tin excepted) are left in a very low and feeble condition, and some powerful stimulus is needed to set them in motion again.

The sensation produced by the late failures, and the recent stringency of the money market is fast subsiding, and the successful promenade of our troops in Afghanistan gives hopes of a speedy settlement with the Ameer, and as the war is very unpopular in England we trust it will soon be brought to a close. It can scarcely be expected that the long-continued interruption to commerce and the blow to commercial credit can be instantly removed, or any sudden increase effected in the demand, for as yet there is no evidence of improvement in that respect; at the same time there is no occasion to be downcast and plunged into the depth of despair, because times are not now so prosperous as formerly. There are certainly not many who expect a general resuscitation of trade until after the close of the present year, which is said to have been one of the worst known in commercial circles for a considerable period; indeed, it may be pronounced unprecedentedly bad. In many ways the times have proved bad, but reaction is always the inevitable result of going a-head too fast, and from the ridiculously high prices we have descended to absurdly low prices, and the equilibrium has yet to be recovered. Some few firms are in a crippled position, and have rendered themselves incapable of taking advantage of present prices on account of being saddled with unsaleable stock, which involves a lock-up of capital; but as the markets have undergone a severe test by the greatest pressure that could be brought to bear upon them, the full extent of depreciation can be ascertained, and holders may safely reckon upon realising within a little of the existing value of metals, and the chances are certainly more in favour of obtaining higher rates than having to accept lower rates. Sellers are already beginning to make a stand, and that will tend to give tone to the market even supposing no increase in the demand takes place; but we fully anticipate a better demand as well as better prices.

Now, the first subject I would call attention to as likely to have a beneficial effect upon trade is the peaceful and orderly state of the country, and this is greatly owing to the cheapness of food, which is admitted to be of primary importance, not only to the working man, but to the great mass of the population; for when the staff of life can be had cheap it sets at liberty people's means for other purposes, and money gets into more general circulation. The blessing of cheap food, therefore, must be attended with good and happy results. Cheap labour is the next advantage, and is really necessary for the success of our manufacturers, and to enable them to hold their own against foreign competitors. The cost of production and manufacture being now considerably reduced ought to enable sellers to obtain some fair remuneration for their capital, and we have no doubt they will do so in a very short time. Cheap prices are another reason why trade should improve; they enable buyers to purchase in larger quantities, and gain possession of cheap stock. Besides, fresh uses are constantly being discovered when prices are cheap, and they must necessarily stimulate consumption. Cheap money, and there are fair grounds for anticipating further reductions in the Bank rate, which will, we expect, be the signal for renewed speculation; but even at 5 per cent. there is nothing to interfere with or check the progress of legitimate trade.

But cheapness of money and of food, and reductions in wages and cost of material, are not the only favourable features prevailing, but they are valuable auxiliaries, and combined with peace, plenty, security, and increased facilities of transit and communication, they are some of the very things which we stand most in need of, and without which trade would continue to languish, but now that we possess them the chances are all the other way, and upon the close of the dull season, or perhaps even before, there may appear signs of activity, and when once the tide begins to turn the pent-up waters may flow in with a rush, and those who have failed to catch them at the full may find themselves floundering about for ever afterwards in shallow waters, but, judging from the disposition of people, there are not likely to be many left behind, for there is an earnest desire for work; a strong and united feeling to help and assist in developing and extending commerce; a longing to shake off depression, and to be promoting and advancing civilisation, and a wish to turn everything to a good and profitable account. The will and the ways and means exist, and our position is decidedly safer and sounder, and all that is wanting to give an impetus to the market is nerve and courage. The long rest may have tired out some, and caused them to sacrifice their holdings, but after such a long pause the majority will probably come forth with renewed energy and vigour, and impart spirit and animation to the trade. If any one thinks we are over sanguine in our views on account of the heavy stocks of metals, all that we can say is that low prices are more than a set-off against them, and their cost being considerably above present prices render them more likely to be withheld from the market than pressed for sale: and we had a confirmation of this last Tuesday, when the Burra Burra Copper Company withdrew their copper from the public auction; and we have recently had the pleasure to witness a considerable elevation in the value of tin, mainly by the efforts of one firm, which only shows what can and what will probably be done when the whole market gets into motion.

COPPER.—The position of this article remains unchanged, and continues to be considered a thoroughly sound one by those best qualified to judge of it. It is true that the statistics compare unfavourably, and we must prepare our readers for a further increase in the figures for Dec. 1 next, but there is nothing alarming in this, as this increase is solely caused by the shipment from Chili of the stocks of the late Mr. Edwards, who for many years had kept stocks in Chili estimated at various times from 10,000 to 15,000 tons. At the time of his death his stock in Chili was supposed to be about 10 000 tons, of which about two-thirds has since been shipped to Europe. It is possible that the remainder may also be transferred to this side, and we may, therefore, expect some more heavy charters, and, as mentioned before, an increase in the statistics. All this copper is, however, withheld from the market, notwithstanding the constant and numerous overtures which are made for the purchase of it to the representative of Mr. Edwards' heirs, who is now residing in England. Far from wishing to relieve himself of his stock, this gentleman's first care, when his agent in England failed, was to take the necessary steps for carrying all the copper over, and in this he succeeded, with the exception of a small quantity which was sold. It is estimated that about 22,000 tons out of the 52,000 tons of copper which are in stock in Europe and afloat belong to this powerful party, and are for all practical purposes not available, for only much higher prices than those now ruling would induce him to sell. The quantity of Chili copper in the market is, therefore, very small. As to Australian sorts, the Wallaroo Company keep now always about 3000 or 4000 tons in stock and afloat, and these are also out of the market, as the Wallaroo Company only sell by public sales, the last of which took place on Tuesday, when 578 tons of cakes were offered, and fetched from 66*l.* 17s. 6d. to 68*l.* 10s. (average of the whole sale being 67*l.* 16s. 9d.), nearly 500 tons of this quantity having been bought by the leading copper export house, who scarcely ever resells on this market. The 53 tons of Australian ingots (brand, Deer Brothers) were bought in at 63*l.* 15s., and the 207 tons of Burra were withdrawn, 65*l.* 10s. having been refused; and this brand is now held for 66*l.* 10s.

As to English copper, the chief sellers of tough and best selected (the Tharsis Company) are believed to have not only disposed of the whole of their stock, but to be well sold for some time to come, and the other English smelters seem to be bare of raw material. The supplies of copper for 1879 will most probably be less than in 1878; firstly we shall only receive from Chili her production, as the stocks there will soon be exhausted, and the production we are assured from competent sources has at least decreased by 5000 tons per year. The production in Australia is also less, and that of Spain has fallen off lately in consequence of some impediment in the make of precipitate. The United States will probably send us less copper in 1879 than this year, for trade of consumption is reviving there, and this is a most important feature for metals altogether. Buyers should well consider all these circumstances, and not forget that to buy well they must buy in flat markets, for directly there is a demand holders raise their prices. They should take a lesson from tin, which to nearly everybody seemed a hopeless case when the price was 53*l.* per ton, and is now 64*l.* 10s. Chili bars are now 58*l.* 10s. to 58*l.* 15s. for g.o.b. on the spot, but only small quantities can be bought thereat, and it wants very little buying to raise the price several pounds per ton.

TIN.—The more the position of tin develops itself the more it becomes patent that the parties who purchased so largely have based their speculation on sound and well-considered facts, and have fully considered all the "pros and cons" before entering upon such a venture. The whole market has been against them, foretelling all sorts of disasters, and that we should be either swamped by the Straits or inundated by Tasmania, and so forth; but these evil forbodings have, happily, not been fulfilled, and it is already clear that the return to last year's prices, although effected somewhat suddenly, has not brought forth an abnormal supply. Now, let us carefully examine the position without prejudice either way. There has been a rise of nearly 20 per cent., and such a rise has, no doubt, had a similar effect in all parts of the globe alike. Here the holders who, while the market was slipping from 75*l.* downwards, and who thought it ridiculous to sell at about 65*l.*, in the conviction that prices must recover, were only too anxious to quit at 60*l.*, having once seen the price at 53*l.* The brokers, who stated in their circulars a few months ago that, as for the price ever going under 60*l.* was mere "twaddle," induced their clients to sell at 53*l.*, and when the price recovered to 60*l.* they called it a fictitious value. The same took place in the Straits and Australia. There was not much accumulation there, still, after having heard of 53*l.*, the Chinese dealers and Australian smelters were only too anxious to sell as much tin as they could at 60*l.* The last few years' experience, and no doubt telegrams from here, having taught them that any rise is merely "a flash in the pan," a phenomenon to last a few days, for, of course, neither in the Straits nor in Australia are dealers competent to form a clear judgment, as their opinions must evidently be onesided, and guided by local prospects. It was, therefore, only natural to expect that this month the shipments would be very heavy, and perhaps the "bears" partially reckoned on this to afford them an opportunity to cover. But what do we see? The total shipments from the Straits have been about 1100 tons, but they only amount to 500 tons to this country, the rest being absorbed by America and India, and this would be actually 100 tons less than in November last year, and every telegram that reaches us from there for the last fortnight states supplies scanty, and such like similar news. Look at the difference when the last rise took place at the end of 1875, when one firm bought up everything from 80*l.* to 94*l.*; the Straits then shipped in one month to England 1400 tons, and were ready to supply more. Times have changed, and the operators must know it to their cost.

From Australia the shipments will probably be less than 800 tons, while November, 1877, they were 1350 tons, and this notwithstanding a rise of 20 per cent. here. In confirmation of our view that the smelters there sold everything they possibly could we have seen telegrams from Sydney within the last few days stating that not an ounce of tin could be bought in the market at any price, everything having been sold out. One must expect the deliveries after such a rise to be affected, as no doubt consumers who will not believe in any advance of prices until they see it fairly established, and who have hitherto been deeply impressed by brokers' circulars that 60*l.* is a fictitious value, keep back from effecting purchases until the last moment; nevertheless, it will be be found the London and Dutch deliveries together will probably exceed 1600 tons. We predict with confidence the London and Dutch deliveries for the next twelve months will probably average 1800 to 2000 tons per month—the same as during the last two months—and where are we to get the supplies from to meet such a heavy demand? Banca is 350 tons per month, and will not be changed. Billiton is 300, including what is going to China and America. As for the Straits, we have the experience of the year 1877, when the average London price was about 69*l.*, and they shipped less than 3000 tons to Europe. We believe shipments will now even be less, for the consumption of India, China, and America supplied direct from the Straits has increased even in greater proportion than the consumption here. Still we will take the above figure—say 250 tons per month.

From Australia we have seen by experience that they shipped about the same quantity at 55*l.* as they did at 65*l.* No doubt they ship all they can, but their power of production is supposed to be limited to about 720 tons per month, say from all places together 1620 tons per ton. If, therefore, we consume only 1900 tons per month we shall reduce our stock within 12 months by about 3300 tons, and this at a price of 65*l.* to 70*l.*, as the above estimated supplies are based on these figures. The arrivals during next month cannot be more than 960 tons—say, Australia: Durham about 120 tons; Garonne, 130 tons; Christian Thompson, 200 tons; Loch Katrine, 150 tons; from the Straits, 360 tons: total, 960 tons. Therefore, again probably a small reduction in stock, and this will no doubt continue for a long time to come. We have the figures of the production of English tin before us, and we find that they are exactly the same as last year, if anything rather below. We can, therefore, give but one advice. Consumers who have been led away by strongly biased circulars or letters from dealers we would advise to cover themselves as quickly as they can for their requirements. Dealers and brokers we would urge not to be blinded by jealousy, spite, and more particularly their present interests, but look facts broadly in the face, and admit that they were not the first to discern the change of position, and on no account to continue to swim against the stream, because they once thought fit to take that course. As sure as fate the old rule of supply and demand will make itself felt at last, although small fluctuations will naturally take place, yet the tendency will be upward. For investors we think the time has arrived, although it would no doubt have been more gratifying to them to have bought earlier, yet there is plenty of time, and if they are patient enough they may get 80*l.* without having to wait very long; but from the statements we have given they can judge clearly for themselves, and we venture to predict for them not a trifling but a very good profit if they buy before the price reaches 70*l.*

IRON.—There is no change in the general appearance of this market, and it remains in the same lifeless conditon as reported for months past. The demand, if anything, is perhaps more contracted than before, but the variations in prices are insignificant; at the same time, a tempting specification might be placed on somewhat better terms than those currently quoted in the market, but the difficulty is to find buyers who will entertain a purchase, however favourable the price may be. The foreign markets have been over stocked by those gigantic merchantile firms who have lately come to grief, and until their estates are realised, and their ill gotten goods are cleared away out of sight, there will be no room for further shipments. The nations know that large sales of material will have to be made, and consequently they will not order any fresh iron until these realisations have taken place.

Many merchants have suffered severely from loss of trade by reason of these big firms monopolising everything and underselling everybody just to keep up on their own legs, regardless of the ruin and misery to hundreds of poor honest families. But what will be thought of them now? Where is all their grandeur? Why their names, leave alone their persons, will be held in abhorrence, and handed down to posterity with a curse. The innocent sufferer, and the guilty go free and laugh at their dupes; so much for the law of England, which protects rogues instead of punishing them, and all for want of a public prosecutor. The poor deluded creditors never will go to the expense of bringing dishonest traders to justice, and the hope of getting a shilling in the pound shuts their mouths. But it is time that such unprincipled traders were banished from the country, and we shall never be safe until they are weeded out, or the nefarious system to which they resort is stopped. If it were known that they would be prosecuted for their evil deeds, and that Extradition treaties were in force in all civilised nations, they would never run into the extremes which they now do.

A wholesome correction by incarceration and a little of the "cat" might make them have regard for other people's feelings, and drive the grubbing, selfish disposition out of them. A man who draws money to live upon out of his estate after he knows of his insolveney is no other than a thief. Our markets all round are flat, and pig-iron is again level. The Scotch houses have reduced their prices, but they do so very tardily, and the result is that stocks accumulate. However unpalatable it may be for sellers to have to admit it, yet it is certain that no good can be done until prices are lower. There are two evils which the Scotch houses have to contend with, and they must not fictitiously uphold the market any longer, otherwise they will make matters worse. The Middlesborough shipments to Grangemouth must be competed for, and secured at all costs, and the accumulation in stock must cease. A reduction in price will remedy both evils, and sellers had better determine at once to make the necessary alteration. Makers should drop the price 4s. to 5s. per ton, which would bring the market into a healthy state; but it is useless to concede 3d. or 6d. per ton at a time, for it is wholly inadequate, and nothing but a sensible drop will avail anything. Sellers can see clearly enough that present rates are no temptation to buyers, and the only inducement for them to buy will be an extraordinary low price. At an earlier period Scotch pigs sold for 36s., and the stock was not bigger then than now, and there was no Middlesborough pigs at that time to depress prices.

SHIPMENTS.

For the week ending Nov. 24. 1877	Tons 7,596
For the week ending Nov. 23, 1878	6,693
Decrease.....	903
Total decrease for 1878	53,015
Imports of Middlesborough pig-iron into Grangemouth:—	
For the week ending Nov. 24, 1877.....	Tons 8,197
For the week ending Nov. 23, 1878	5,151
Decrease	3,046
Total decrease for 1878	11,534

FURNACES.

In blast Nov. 24, 1877	89
In blast Nov. 23, 1878	88

TIN-PLATES.—The demand lately has considerably improved for America, and most of the tin-plate works are busier now than for a very long time past, but makers have not only succeeded in obtaining an increased demand, but, what is equally fortunate and acceptable, an increased price. It is true they have to pay a little more for their tin, but a a set off against this iron is cheaper. The prices of tin-plates are still very low, and there is room for plenty of improvement, and the turn which the market has taken will probably prove to be progressive, and of permanent duration.

LEAD continues very quiet, and rather easier in price.

QUICKSILVER is held for 6*l.* 12s. 6d., but with little business passing. The advices from California indicate a lessened consumption and a continued large production.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday evening, —The Glasgow market for Scotch pig-iron has been steady during the week. This morning the market was firm, with business at 42s. 6d. to 42s. 8d. This afternoon the market was firm, closing with sellers at 42s. 9d., buyers offering a shadeless. This is exactly the same as the closing price last week. We quote makers No. 1 iron:—Gartsherrie, 50s. 6d.; Coltness, 51s. 6d.; Calder, 51s. 6d.; Langloan, 52s.; Summerlee, 48s. 6d.; Monkland, 44s. 6d. f.o.b. Glasgow; Glengarnock, 48s.; Eglinton, 44. 6d. f.o.b. Ardrossan; Shotts, 52s. f.o.b. Leith. The depressed state of the iron trade continues unabated. We have no change for the better to report in any department. It is a great pleasure, however, to be able to say that tin-plates are improved, as LC. coke can now be freely sold in Liverpool at from 1s. to 1s. 3d. per box above the late ruinous quotations. No doubt this improvement is mainly brought about by the faithful carrying out of the Swansea resolution, and the increased demand for tin-plates in the United States for the manufacture of packages used for paraffin, beef, mutton, fish, and fruit. We expect to see tin-plates further advanced immediately.

Referring back to the iron trade, the look-out for this winter is exceedingly discouraging. No one expects the slightest rally during this year. We do, however, hope and believe that by next March we shall have turned the corner; and, as the prospects of the spring trade will then be fairly pronounced, a brighter trade with another summer will dawn on iron industries. No doubt the present stagnation has been considerably intensified by the failure of the City of Glasgow Bank. It is true that iron and ironmasters have had no part in this awful catastrophe. Ironmasters are not on the roll of the shareholders, but the roll of suffering is far and widespread, and in its remote effects reaches the buyers of iron and machinery from one end of the kingdom to the other. Besides this, it has induced all the bankers to hoard their funds, keeping their institutions strong in cash, and ready for all contingencies, precluding thousands of needy traders from the reasonable accommodation which the country bankers have been in the habit of affording.

No one can be surprised at this; the board of directors will take care of their bank, and a small trader must take care of himself, or go the wall. Hence the great number of failures, loss of credit, and general confusion, which stops orders, dissolves contracts, and curtails demand for iron in a thousand ways, too numerous to mention; however, the crops in America are prodigious—our own crop was good this year. The money market is settling down, discounts are lower, and, although the markets for iron are worse than ever we knew them to be, let us hope that the present extreme depression will prove the darkening hour of early morning which immediately precedes the pleasing and perfect light of the opening day.

The MINING SHARE MARKET has been more active this week, and a good many inquiries made for shares in different mines; but as in most cases low prices are offered it has been difficult to deal, and actual business has not been very extensive. The settlement of the fortnightly account has occupied the chief attention of the dealers.

TIN.—The Dutch sale of Banca tin realised nearly 7*l.* per ton more than the previous sale in September; and the Cornish smelters have again advanced the standards for ore 2*l.* per ton, making a rise of 8*l.* per ton altogether. Thus a more satisfactory state of things is setting in, and as tin rises other metals also will probably advance. Tin shares are firmer, without much real business doing. Dolcoaths are quoted 30 to 32.

Carn Brea, 35 to 37; Tincroft, 9¼ to 10. West Frances have advanced to 4½, 5, owing to an improvement in the mine. Penstruthal, 3s. to 5s.; the accounts and directors' report show tin returns for the 12 months ending September last, 1746*l.* 9s. 9d.; copper ore, 368*l.* 19s. 6d. The costs have been—Labour, 2648*l.* 10s. 9d.; merchants, 962*l.* 9s. 9d.; loss, 1495*l.* 7s. 11d, or an average of 115*l.* per month. The first sale of black tin in the accounts realised 44*l.* 5s., the last only 32*l.* 17s. 6d., since which the standard has risen. The total returns of the mine are given as—Tin, 15,811*l.* 16s. 7d.; copper, 1779*l.* 7s. 11d.; tinstone, 402*l.* 19s. 6d.; dividends paid, 6105*l.* 14s. 8d. The report states that the low price of tin has thrown many of the points of contemplated operation in abeyance. With an advance in the price of mineral there will be an increase of tribute working. South Frances, 6½ to 7; this mine is said to be rich in the flat lode, but a trifling accident to the boiler has caused a little flatness in the shares.

East Pool, 9¼ to 9¾; Cook's Kitchen, 1½ to 2; South Condurrow, 10½ to 11; West Basset, 3½ to 4. Wheal Agar, 4 to 4½; the lode in the 215 is not yet cut through, but so far is 12 ft. wide, a good lode, and no wall yet. Wheal Grenville, 3 to 3½; Wheal Kitty (St. Agnes), 1 to 1½; Wheal Peevor, 6⅜ to 6½; Wheal Uny, 8s. to 10s.

COPPER MINES.—Very little change has taken place here, but there are several enquiries for low-priced shares, such as might have a good rise upon any advance in copper ore. South Caradon, 55 to 60; at the meeting in Cornwall the accounts showed a profit

of 502*l.* on three months working, and a dividend of 1*l.* per share (512*l.*) was declared. The return for the quarter was 1386 tons of copper ore, valued at 7348*l.*; costs, 6848*l.* The balance left in hand after the payment of dividend is 2532*l.* The mine continues to look well, and the lords have consented to reduce the dues from 1-18th to 1-30th during pleasure. West Seton very flat, owing to a heavy loss anticipated at the meeting. West Tolgus, 40 to 42½; Parys Mountain in fair request at 5s. to 7s.; Morfa-Du, 17s. 6d. to 20s. (17s. 6d. paid). Devon Great Consols, 20s. to 30s.; full particulars of the meeting will be found in another column. Mellanear, 4 to 4¼; Marke Valley, 15s. to 20s.

LEAD MINES are firmer, and more in demand; though there is not much business doing, owing to shortness of stock, and most of our quotations may still be regarded as nominal. Van, 17 to 18; the 105 west is worth 8 tons of lead ore per cubic fathom. The 90 west is improving. Roman Gravels, 6¼ to 6¾; the new engine-shaft is now 3 fms. 5 ft. below the 110 fm. level. The 110 north is worth 2½ tons per fathom. The 110 south is yielding stones of ore. Tankerville, 3 to 3¼; the 206 west is worth 2 tons of lead ore per fathom. The sampling for the month is 80 tons of best quality ore. West Tankerville has sampled 25 tons. Pateley Bridge, 3½ to 4; West Pateley, 1¾ to 2¼; East Van, 1½ to 2; Glenroy, 10 to 15s.; Great Laxey, 17 to 18; Leadhills, 2 to 2½; Mineral Corporation, 10 to 11; Rookhope, 10s. to 12s. 6d.; West Chiverton, 2 to 2½; D'Eresby Mountain, 30 to 40; Aberllyn, 10 to 15; Clementina, 1 to 1¼; Caron, 2 to 2½; Frongoch, 2½ to 2⅞; Grogwinion, 2 to 2½; Hartington, 1½ to 2; Mawston, 55 to 60; Red Rock, 1¾ to 2¼; St. Harmon, 2 to 3; South Cwmystwith, 1½ to 2½; West Wye Valley, 2 to 2¼; Wye Valley, 1⅞ to 2¼.

FOREIGN MINES.—Blue Tent, 2 to 3; Cape Copper, 29 to 30; Colorado, 1⅛ to 2⅛; Chontales, 11s. to 13s.; Don Pedro, 8s. to 10s.; Eberhardt and Aurora, 3½ to 4; St. John del Rey, 285 to 295; the profit for the month of October is 5800*l.* Santa Barbara, 37s. 6d. to 42s. 6d.; Placerville, 2½ to 2⅝; good progress is being made in the shaft: in sinking the winze the vein is found to be widening, and carrying extra good quartz. Frontino, 1⅝ to 1¾; New Zealand Kapanga, 12s. 6d. to 17s. 6d.; New Quebrada, 1⅞ to 2; Port Phillip, 10s. to 12s. 6d. Hultafall, 3 to 3½. Richmonds, owing to shortness of delivery at the account, rose on Friday from 10 to 11, and leave off, 11 to 11¼.

The Market for Mine Shares on the Stock Exchange fully maintains the gratifying improvement noticed last waek, and although, except in a very few instances, there has been no important change in the quotations, there is now quite as much difficulty in buying at quotations as only a few weeks since was found in selling at them. The long depression has led to the utmost economy being practised in every department, and at almost every mine, and of this, with improved prices the shareholders will now reap the full benefit. At the Devon Great Consols meeting the question of cost of management was fully discussed, but no formal resolution upon it was come to. One point raised was the salary paid to Mr. T. Morris as the resident managing director and member of the board. The directors' fees are voted in general meeting, the last vote being 420*l.*, of which Mr. Morris received 100*l.*, in addition to which he is paid 400*l.* as resident director, and has a house provided on the mine. Exception was taken to the amount of the salary considering the depression, and to his receiving both board fees and the resident's salary, but several of the shareholders regarded the payments as fair and just; and with regard to the resident's salary Mr. Morris explained that he had reduced his salary 33 per cent.—from 600*l.* to 400*l.*, that he had conducted the financial management of the concern for 44 years to the satisfaction of the shareholders, and that during that time about 4,000,000*l.* had passed through his hands for the sale of produce alone. For many years 50,000*l.* per annum was paid as dividend on the 1024*l.* capital, and the Duke of Bedford received 10,000*l.* per annum as royalty. Capt. Isaac Richards had been at the head of his department for 33 years, and was a most efficient officer, and the other employees at the mine also gave the utmost satisfaction. During the coming year they expected to raise 30,000*l.* worth of copper and arsenic, which would leave a good profit. Mr. Stewart moved a resolution to appoint a committee to reduce the cost of management by at least one-half if after investigation it were found expedient; but the apparently almost general feeling of the meeting being opposed to such a course the resolution was not seconded, and fell to the ground, Mr. Stewart himself moving the vote of thanks to the Chairman and directors. The accounts showed an apparent loss of 5000*l.*, but against this there was stated to be a large stock of arsenic, the whole of which has, it is understood, been sold since the meeting at 6*l.* 12s. 6d. per ton—an excellent price, which will place the concern in a sound financial condition.

Directors should be cautioned against paying dividends on account in the hope that they will be able to transmute their stock of copper, tin, or lead into gold. As the result of his profound study of mechanics and the higher mathematics, the late Professor Macquorn Rankine applied for a patent for a method of producing perpetual motion. As the result of his profound study of spectroscopy, Mr. Norman Lockyer has studied himself into the belief that he has discovered an equal impossibility—the transmutation of metals. But even the wisest sometimes err, and although it is more than improbable that Mr. Lockyer will be able to maintain the ground he has taken as the discoverer of the philosopher's stone, he may have done something equally useful in facilitating the proof that his beloved science (?) of spectroscopy is only worthy to be classed with alchemy and phrenology. As it only required a single investigation of a Tyndall to explode the fallacy of the existence of psychic force, so it may be presumed that the demonstration of the fact that there is no transmutation of metals will be quite as easy. Mr. Lockyer has always been regarded as very sanguine, and does not pretend to be an accomplished chemist; but he has the reputation of being an excellent spectroscopist. This latter fact alone will, after more careful investigation of his supposed discovery has been made, probably give spectroscopy a blow from which it will never recover. It is stated that on Monday, "in the presence of a small party of scientific men, Mr. Lockyer, by the aid of a powerful voltaic current, volatilised copper within a glass tube, dissolved the deposit formed within the tube in hydrochloric acid, and then showed, by means of the spectroscope, that the solution contained no longer copper, but another metal, calcium, the base of ordinary lime. The experiment was repeated with other metals, and with corresponding results. Nickel was thus changed into cobalt, and calcium into strontium." It will be obvious to every accurate thinker that this statement contains nothing to justify a claim to the discovery of she transmutation of metals, whatever it may do towards proving that what we now regard as elements are but different compounds of some undiscovered primary element, as was contended, without proof, some ten years since by Hinrichs, who gave this primary element the name of "pantogen." It cannot be too generally understood that it by no means follows because a solution of electrically volatilised copper in hydrochloric acid gives the calcium lines in the spectroscope that there is "no reason why copper should not be changed into gold as well as calcium." All that is really proved is that a solution of electrically volatised copper does not give the same lines in the spectroscope as a solution of copper not so treated; it does not follow that because mundic contains sulphur therefore mundic ought to be convertible into galena: yet this is the basis of the error into which most transmuters fall.

Devon Great Consols, 1¾ to 2, having advanced during the week about 1*l.* per share. In another column will be found a full account of the half-yearly meeting. In last week's Journal attention was called to the enormous expenditure of management both in London and at the mines, especially the latter, and one cannot wonder at the remarks made at the meeting on this important point, for it has for years been well known to every person that extravagant expenditure has been going on at these mines, and remuneration paid to resident directors, agents, and others; and as many very naturally say, there is no need to keep up these appointments, and another remark that a good purser with 100*l.* a-year would do the duty of the present resident director, who now receives, it appears, 525*l.* per annum, besides a mansion to live in rent free. Then, again, various other officers, agents, overlookers, pitmen, supernumeraries, &c., might be very well reduced. Such is the information received from various quarters in the neighbourhood; and, in fact, the whole local management in and near the mines and in London ought to be done for at least half the present amount. It appears from the report of the meeting that a shareholder proposed, and another seconded, a very wise and just resolution, appointing a committee (of three or five) as a consultative committee, to assist the directors in the curtailment of expenditure, and after a long discussion the further consideration was deferred until the next half-yearly meeting, the Chairman promising on behalf of the directors that further general reductions would be carried into effect in the various departments, and which in these depressed times must have immediate consideration, for as a shareholder very properly put it, that these mines cannot be carried on solely for philanthropic motives or be made into a hospital. It leaked out at the meeting, and created some surprise, that the resident director took 105*l.* from the direction money voted for last year (in addition to his 400*l.* a-year as resident director), and never attended once at the board meetings in London, whilst the late Chairman (Mr. A. W. Thomas) took 105*l.* for his year's remuneration, having only attended twice at the board meetings, or 52*l.* 10s. for each attendance! which is, to use a mild expression, unjustifiable. As we stated last week, all concerned should consider, if the mines are to be kept together, there must be a reduction of the general expenditure (and of hands employed) from the highest to the lowest, and it is for the shareholders to see that this is carried out, otherwise a thorough re-organisation must be effected. Some remarks were made at the meeting with regard to the disposal of the late manager's residence and the resident director's residence, or letting of the same at a fixed rental. Surely this could easily be done, and any other property disposed of which is not necessary. Week after week the importance of taking an interest in the welfare and proper management is urged on shareholders in mining companies, who are enjoined to impress upon the directors or officers in whose charge the social management is entrusted the necessity of dispensing with unnecessary hands, and economising. From the various communications constantly received, there appears to be no mine where this is required more than at Devon Consols, and, as a shareholder writes, "the pruning knife" freely handled, must be carried out forthwith. Another shareholder writes "that, sooner than continue the present enormous expenditure, he would willingly agree to suspend operations." Several shareholders present expressed themselves highly pleased with the conduct of the Chairman and the present London board of directors. It is to be hoped his Grace the Duke of Bedford will come forward with liberal spirit, and render the company assistance through this unprecedented depression, and that ere long a better price for metals may be obtainable.

St. John del Rey, 285 to 295; the latest telegram from Morro Vello, dated Rio de Janerio, Nov. 23, states that the profit for October was 5800*l.*, and the produce for the first division (12 days) of November was 12,750 oits., of the value of 4940*l.*, the ley of the ore being 6·2 oits. per ton; all going on well. Don Pedro North del Rey, ½ to ⅝; the latest telegram from the mine, datod Rio, Nov. 24, states that the clean-up for the first division of November was 750 oits. Santa Barbara, 1¾ to 2¼. at the meeting of the board of directors on Wednesday, an interim dividend of 1s. per share on account of the year ending Dec. 3, was declared payable on Dec. 17.

Richmond, 10 to 10½; it appears that the bottoms taken out from beneath the foundations of the old furnaces will far more than repay the entire cost of rebuilding. It may be explained that in the smelting of tin, copper, lead, &c., a certain small percentage of the metal percolates through the sole of the furnace and accumulates as "bottoms," which can only be got at when the furnace is broken up Some of the American journals are referring to this as the discovery of a bonanza at the Richmond, and then forming conclusions thereon. The bottoms taken out represent about 20 tons of metal, and a rough assay gives $1600 gold, and $500 silver, which would give $42,000 for the mass. But the whole of this $42,000 must not be looked for to come to credit, as when new furnaces are lighted up an important percentage of the metal in the ores is lost to form new bottoms, the loss diminishing charge by charge until the furnace is in proper order.

Some attempt has been made to create an unfavourable impression with regard to the Richmond by alleging the unfavourable financial position of Eureka Consolidated. The Eureka official annual report, published Oct. 12, shows that the allegation was false, for, while the cash on hand was but $27 804·44, there were base bullion and lead on hand in excess of advances upon them to the value of $153,514, which, with the cash above mentioned, make the available money resources of the company at the least, after paying the September dividend, $175,000. The cash balance in the hands of the treasurer on October, 1877, was but $25,000, or $2000 less than for this year, after the mine has paid its shareholders $1,800,000 for the intervening twelvemonth. The report of the manager of the Richmond (Nov. 7) refers to no particular change in the mine. The reconstruction of the works is being pushed on with all possible speed. The ironwork for the furnaces will be shipped from San Francisco this week, and as the roofing was only shipped yesterday from Pittsburgh it will not be at the mine as soon as they will be ready for it. A telegram just received from the mine at Eureka, states that the "mine is improving daily; drifted 70 ft. from rise 80 ft. above 500; good ore making up towards Tip Top." A correspondent writes that "the largest ore body ever uncovered in this property is now being opened out in the 5th level, and in the 6th level, to the north-west, in a drift now being vigorously carried forward, there is every indication of another important find. Rich bunches of ore have been passed through, and the evidences, in the way of mineral stains and stringers of ore, multiply daily. There is sufficient ore now in sight to run the furnace for a year or more."

Colorado United, 1⅞ to 2¼; the lode which was cut barren about 600 ft. inside the Silver ore Tunnel about 18 months ago is being prospected, and the Superintendent advises that the east drift, 18 ft. in, carries 2 in. of 91 oz. ore. This is known to be a very strongly defined and kindly lode. Private telegrams state that at a distance of a further 450 ft. from this tunnel has been cutting lode matter with rich mineral for the past 10 ft. of driving. The tunnel was started for the purpose of intersecting the "Brown" system of lodes, and it seems likely that the goal is now reached. The daily product of ore in the Leadville Mining Camp, Colorado, is from $30,000 to $35,000. The excitement in the district continues, and other rich discoveries are reported almost daily. The Little Pittsburg Mine is now yielding 75 tons of 200 oz. ore daily, and a daily profit of $4000 = 1200*l.* The ore vein is 13 ft. across, and the developments show large reserves of ore.

The Comstock advices refer to the extension of the Virginia and Truckee Railway is being extended northward to furnish supplies to the North Consolidated Virginia shaft. At the mine the surface preparations for the new machinery betoken the erection in a short time of hoisting works second in strength and durability to nothing of the kind on the Comstock. This is regarded as one of the most important and interesting points on the Comstock, as the shift will not only in course of time assist in ventilating and working the Union Consolidated and Mexican Mines, but will before the reaches the depth of 2200 ft. penetrate the very heart of the new Sierra Nevada bonanza.

The Market for Hydraulic or Gold-Washing Shares remains quiet, and prices are unchanged. The news from California is encouraging for this description of mining, and mention is everywhere made of more capital being brought into the business for the making of canals and the putting up of new claims. The past year has been a successful one, on the whole. Blue Tent, 2½ to 3. Placerville, 2⅛ to 2⅜; the shaft is being sunk at the rate of 10 feet per week, and is now clear of the vein. At this rate of progress the next level should be reached early in December. The sump-winze is sinking in the vein, which is found to be carrying extra good quartz, containing rich gold.

Lead Mines have again been a firmer market, and in not a few instances purchasers find it difficult to obtain stock at quotations. Van shares have further improved, now quoted 18 to 19; the 105 west is worth 8 tons lead ore per cubic fathom; 90 west improving; other parts of the mine unchanged. The usual sampling will take place during the coming week. Grogwinion, 2 to 2½; no fresh news this week, mine opening out well. Frongoch, 2½ to 2⅞; capital progress is making at the mine, and prospects are excellent. Caron, 2 to 22; a parcel of lead ore has this week been sold, and a further quantity will be got ready at once. Wye Valley, 2 to 2¼; 40 tons of lead have been sampled at this mine for sale next week. West Wye Valley, 1¾ to 2¼; no fresh news.

Mineral Corporation, 10 to 11; there has been no change of importance during the past week, but operations are reported to be going on quite satisfactorily. The different ends and stopes are of much the same value as reported last week, but No. 2 adit has been set to drive west, at 4*l.* per fathom, and will be pushed on to get under the lead ground gone down in the bottom of No. 1 level. They commenced taking down some of the lode in No. 1 and No. 4 levels on Wednesday, and a report of the result is promised for next week.

Rhyd Alyn lead is reported to be very scarce at 45*l.* for 1000th part, there only being a few holders, who have after several years perseverance brought the mine into its present profitable state, and are unwilling to part with any of their interest. The mine is making a monthly profit of about 230*l.*, which can be increased. The day level some time ago intersected a course of ore, yielding for the last 50 yards in length from 1 to 2 ft. solid ore, and in one place 3 ft. wide, which has considerably enhanced the value of the property; the latter is situated in the same district as Minera, North Hendre, and Pant-y-Mwyn, all on the Dividend List.

Pateley Bridge, 3½ to 4; the Rake vein in the 30 is looking very promising, and worth 1½ ton of lead ore per fathom for the part carried. The improvement in the 20 east on the same vein continues, with every appearance of further improvement. Other parts of the mine are looking exceedingly favourable. Smelting is progressing as usual. West Pateley, 1¾ to 2¼; the report this week refers to the opening out of a leader of solid lead ore of 6 in. in width in the deepest workings of the mine, and also to improvements in the shallower workings.

Subjoined are the closing quotations:—

Assheton, ½ to 1; Devon Great Consols, dis. to ¼ prem.; East Caradon, ⅛ to ⅜; East Van, 1¾ to 2; Glenroy, ⅜ to ⅝; Great Laxey, 16½ to 17⅛; Hingston Down, ⅛ to ⅜; Leadhills, 2 to 2¼; Marke Valley, ¾ to 1; Parys Mountain, ¼ to ⅜; Pateley Bridge, 3½ to 4; Roman Gravels, 6 to 6⅛; Tankerville, 3¼ to 3⅜; Tincroft, 8⅛ to 10⅛; Van, 17 to 18; West Chiverton, 1⅝ to 2⅛; West Pateley, 1¾ to 2⅛; Wheal Grenville, 2⅛ to 3⅛; Almada and Tirito, ⅛ to ¼; Birdseye Creek, ½ to ¾; Blue Tent, 2¾ to 3; Cape Copper, 29 to 30; Cedar Creek, 1-16ths to 3-16ths; Chontalee, ⅛ to ⅜; Colorado United, 2⅛ to 2⅜; Don Pedro, ⅜ to ½; Eberhardt and Aurora, 3½ to 3¾; Exchequer, ⅛ to ⅜; Flagstaff, ⅛ to ⅜; Hultafall, 3 to 3½; Kapanga, ⅜ to ⅞; Last Chance, ⅛ to ⅜; New Quebrada, 1¾ to 2; Pestarena, ⅛ to ¼; Placerville, 2⅛ to 2⅜; Port Phillip, ⅜ to ⅝; Richmond Consols, 11 to 11⅛; St. John del Rey, 285 to 295; Santa Barbara, 1¾ to 2¼; Sierra Buttes, 1⅛ to 1¼; South Aurora, ⅛ to ¼; United Mexican, 3 to 3⅛.

COALFIELDS.—The almost entire absence of business in colliery shares precludes the chance of any material fluctuations in prices; and, as a matter of fact, quotations remain about the same as for several weeks past. In some respects the prospects of the coal trade are brighter, particularly in the Midland Counties and South Wales. Our northern collieries are altogether out of those markets where they have to compete with the South Wales coalowners, and the large extent to which London is now being supplied with house coals by the railway lines tapping the Midland coal-fields, when compared with the falling off in the quantity of seaborne coal, affords a fair proof of the extremely unfavourable condition under which Durham collieries are labouring. South Wales, on the other hand, is doing a large though at presens not a very lucrative trade; and, as we have before pointed out, there can be no doubt whatever that colliery owners and others in South Wales have done, and are doing, everything possible to increase their trade and to cheapen their means of transport.

South Wales is a comparatively young but very formidable competitor in the coal trade, and as our northern fields are gradually becoming exhausted we look to the Principality for a constantly increasing supply of fuel. Anthracite, as is now becoming evident, will form a very important factor in the future of South Wales. Its adaptability for almost every purpose where heat is required, such as lime burning, malt drying, smelting works, and for steam production is day by day creating an increased demand for it. Good collieries containing anthracite seams should, therefore, be kept well in view, more particularly as there is about to be a decided and combined movement to raise the price of anthracite coal in the market. One thing, at all events, may, we think, be safely asserted of all fuel, and that is, that the lowest prices have been reached, and that when any movement is made it will be in an upward direction. Chapel House reports continue satisfactory. Although most of the neighbouring collieries are only working a few days a fortnight, Chapel House is in full operation, and finds a ready market for all its output. The shares keep steady, at 3 to 3¼. Cardiff and Swansea close at ⅜ to 1; Newport Abercarn, 4 to 4⅛; New Sharlston, 3 to 4; Thorpe Gawber, 1½ to 2; Yniscedwyn, 10 to 10¼.

WEST PATELEY (Lead).—Since the general meeting, held on Nov. 12, the mine has further improved in several material points, confirming the anticipations of the manager, that the main objects for which the company had been formed were now about to be realised. Not the least important improvement is in connection with the Craven Cross shaft—the key of the mine. Here, at a depth of 54 fathoms, the vein is fully 4 ft. wide, between two well-defined walls, consisting of gossan and lime-spar, intermixed throughout with branches of lead ore of fine quality, a sample of which has been forwarded to the company's offices, Gresham House. In the 56 fm. level, coming under the Craven Cross shaft, there is a fine vein, 4 ft. in width, carrying a solid leader of lead ore 6 in. wide. Referring to this section of the company's property, the manager at the meeting stated "that the prospects are most flattering."

*** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: National Relief of Distress Caused by Mining Accidents; On the Consumption of Fuel for Mining Engines; Economy in Filling Skips; Electric Signalling for Mines; Dynamo-Electric Machine (L. Simon); Rock-Drills (G. Cook, W. Thompson); Rock-boring Machinery (Hathorn and Co.); Gold in India (T. Hughes); Mining in New South Wales (R. D. Adams); Frontino and Bolivia Company; Present Price of Lead; British Silver-lead Mines; the Great Northern Railway; Mining in Ireland, and Cheap Transport (W. J. Thompson); Mining in Ireland—West Cork Mines, &c.; Silver-Lead and South Devon Silver Mines; Reciprocal Free Trade (T. Smith); Devon Great Consols; Mining in North Cardiganshire; Parys Mountain Mine (J. Milton, J. Lean); the Scotch Mining Share Market—Registration of New Companies—Regulation of Electric Currents; Foreign Mining and Metallurgy—Foreign Mines—the Bessemer Process for Copper Pyrites—New Composition for Castings—Manufacture of Zinc Oxide—Patent Matters—Meetings of Oregon Hydraulic, Devon Great Consols, Fitzroy Bessemer Steel, Tyn-y-Fron, South Caradon, and Bedford United Companies, &c.

Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

MINING AND SMELTING MAGAZINE.—In reply to some inquiries made a few months since for copies of the Mining and Smelting Magazine, will you permit me to state that I have the six volumes, neatly bound in three volumes cloth, for which I should be glad to receive an offer.—E.

RICHMOND MINING COMPANY.—The pressure on our space compels us to defer the insertion of Mr. R. M. Brereton's letter until next week.—We are also compelled to postpone our Eureka Letter, which reached us yesterday.

Received,—George Henwood, White Waltham, near Maidenhead—"W. B." (Salt Lake City)—"E. J." (San Francisco)—"A. G. C.": The matter is under consideration—"Shareholder" (Richmond)—"H. B." (Liverpool)—"Constant Reader" (Manchester); We will endeavour to publish it in next week's Journal—"M. R." (Swansea)—"Shareholder" (West Chiverton) should write to the Secretary—"M. W."

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, NOVEMBER 30, 1878.

THE PROPOSED MINERS' NATIONAL RELIEF FUND.

The meeting held in Manchester last week for the purpose of considering the question of the establishment of a permanent and national miners' relief fund, for meeting the distress occasioned by colliery accidents in which the workers are killed, has turned out, as we anticipated it would do, a purely local movement of a decidedly centralising character. It will be remembered that a short time since we drew attention to the subject, pointing out how efficiently the funds in different counties were administered by persons residing in the various localities where the societies were formed, and how unnecessary was the formation of any other body in connection with them; but one or two individuals, from philanthropic or some other motive, have thought differently, and desire to see a national scheme brought into operation. Amongst these the foremost appears to be Mr. ELLIS LEVER, a well-known coal merchant in Manchester, who a short time since took the extraordinary step of writing direct to the QUEEN asking her support in favour of a crude scheme he had drawn up in what he considered the interests of the miners. With the courtesy belonging to the English Court an acknowledgment was received from one of Her Majesty's secretaries, so that Mr. LEVER obtained a little passing notoriety, which has certainly not as yet grown into anything at all approaching popularity. Having thus obtained a summary quietus from the highest quarter, as we suppose is the case daily with respect to others who pester Her Majesty with letters on nearly all conceivable subjects, and which she never sees, Mr. LEVER then took steps to call a meeting in Manchester, and was fortunate enough to secure as speakers the Mayor of Manchester, the Bishop of Manchester, and a few other local magnates, all of whom we feel sure were desirous of aiding in every way they could what they believed to be for the best interests of the miners of the country and their families. But some of these gentlemen did not see exactly how the miners' interests would be advanced by the formation of a national permanent fund, the objections in particular of the Bishop of Manchester being most forcible and cogent. Significantly enough, however, the meeting commenced with the reading of an elaborate paper on the proposed National Relief Fund by Mr. G. L. CAMPBELL, general secretary of the Lancashire and Cheshire Miners' Relief Society, in which he pointed out how successfully the existing societies have been carried on, how strong they were numerically, and what large funds they have at command. Mr. CAMPBELL, of course, alluded to the scheme of Mr. LEVER, which he said "had elicited a letter from the QUEEN," and then went on to show the position of several of the societies in different parts of the kingdom, but these were in so highly flourishing a state as must have struck many present as being a strong argument in opposition to the proposed national fund. The Northumberland and Durham Society, they were told, last year had 70,000 members, with a revenue of 46,480*l*. Surely such a society requires no extraneous aid, nor could be benefited by belonging to a central body, whilst we may well feel sure that its members would oppose the diverting of any portion of its funds for centralising purposes, or the support of those persons who are in the same position as themselves, but less provident.

Another argument in favour of the national fund adduced at the meeting was the belief that at the present time there was fully 100,000*l*. which had been subscribed for colliery accidents now lying idle that might be obtained to form the nucleus of a permanent fund. Having paid a good deal of attention to the funds raised for the relief of the sufferers by different colliery explosions we feel sure that nothing at all like the amount named remains unappropriated. Whatever surpluses there may be in hand will doubtless go towards strengthening the societies in the counties where the accidents took place, and for which the moneys were specially given. As we pointed out in a previous article the existing societies have done their work well, and the local promoters and managers of them were better able to weed out the deserving from the undeserving cases in the localities in which they resided than could any central body sitting in Manchester. Then if the local associations, supported as they are by the owners of mines, have done all that is necessary, why establish another agency at a distance, and place large funds at its disposal? Or is it to be expected that gentlemen who liberally subscribe to the societies in localities with which they are directly connected will also subscribe to the national fund? We should say most decidedly not.

These were the arguments we adduced in a recent article on the subject, and we find that they were fully endorsed at the late meeting by the Bishop of Manchester. His lordship said he was opposed to centralisation, which would give greater facilities for imposition than under the present system of administering local relief funds, whilst if it was intended that those only should subscribe to the proposed fund that were interested in mining then they would be called upon to give to two societies, which they were not likely to do. His lordship also pointed out the statement of Mr. CAMPBELL to the effect that the central committee's relief should not exceed the relief granted by the local committees, so that it looked like having two separate reliefs for the same object.

The question really is—Are the societies now in existence capable of meeting all demands that are likely to be made upon them, and have they so far worked well and most efficiently? We have no hesitation in saying that they have, and that under the circumstances it is wise to "leave well alone," however disappointing that may be to the disinterested gentlemen who have taken the initiative in the movement for the establishment of a National Fund for the relief of those who may be left destitute owing to colliery accidents. We may say we have long advocated the formation of local societies, supported solely by mineowners and miners, for we should like to see the latter being less dependent on the charity of the public in the event of accidents than they have been. Societies have already been formed in many districts, and have now nothing to fear, for they are ready for any emergency that may occur whilst others are in course of formation. In these bodies the working miners take part in the management, the cost of which, considering the amount of money annually subscribed, is comparatively trifling. Is it, then, necessary to do anything which can interfere with a system which has worked so well, and has led to the working miners taking a greater interest in what relates to the welfare of themselves and their families than they had previously done? Is there, in fact, anything to be gained by the establishment in Manchester of a central office, with well-paid officials, for the purpose of endeavouring to improve upon what is already being done well and satisfactorily? We certainly think there is not. Two or three persons would most assuredly be benefited by receiving salaries, and those persons would be about the only gainers.

If the philanthropic gentlemen who met in Manchester the other day really desire to do good to the mining body, let them do all they can to promote local societies in districts where they do not exist at present. There are plenty of opportunities for them to commence at once. They have only to go into South Wales, where the various districts by their delegates have recently declared by an immense majority against the establishment of a permanent relief fund. This, too, after the public had subscribed so liberally towards the relief of the sufferers by the Abercarn explosion. But as the subject is again to be brought before the miners we will furnish their leaders with a new argument in favour of a local fund. We are told that no less than 54,000*l*. have been subscribed for the Abercarn people, and we do not believe that more than from 30,000*l*. to 35,000*l*. will be required for the purpose, so that there will be a surplus of at least 24,000*l*. to go towards any permanent fund that may be established. Our reason for coming to this conclusion is founded on a well remembered event. In 1866 an explosion took place at the Oaks Colliery, by which 361 persons were killed, and the total of subscriptions for the sufferers amounted to 48,747*l*. 3*s*. Of that sum there remained in hand on January, 1876, 29,400*l*. 9*s*. 5*d*., and as all the children will have reached the age of 13 years at the close of 1879, or a few months after, and then be entirely off the fund, so that only some of the widows will remain, it is estimated that there will be a surplus when every claim is met of from 16,000*l*. to 20,000*l*.

Now if it only needed in the first instance a capital of not more than 30,000*l*. to meet the requirements of the relatives of the 361 persons killed at the Oaks, it is only fair to presume that a much less sum will be required for the relatives of the 280 persons killed at the Abercarn Colliery explosion, so no great difficulty will be experienced in arriving at the surplus that is likely to be left after making ample provision for all the persons who suffered by the latter calamity. That surplus should not be lost sight of by the colliers of South Wales, but should stimulate them in forming a permanent relief fund for the future benefit of themselves and their families. However, we think we have given sufficient reasons for maintaining intact local mining permanent relief societies, and showing how little necessity there is for a centralising or National Association with its headquarters in Manchester. In doing so we have only looked to what we believe will be most advantageous to the mining body in all parts of the kingdom, and with every respect for the opinions of those gentlemen who, not immediately connected with the mining interest, or acquainted with the working of the local relief societies, have advocated the formation of a national permanent fund.

MINING LEGISLATION AND AGITATION.

Recently we drew attention to the agitation going forward for certain alterations in and additions to the Mines Regulation Act of 1872 on the part of the leaders of the various workmen's associations, and how necessary it was that colliery-owners and managers should be prepared to look after their interests in the ensuing Session of Parliament. Seeing that Parliament will meet fully two months earlier than usual those interested in mining legislation should now be ready with whatever proposals they have to make, or objections to raise, against the proposals of others. Our own views with regard to past and prospective legislation in mining affairs have been freely and fully given, and we are glad to find that they have met with the approval of those who have the management of mines in all parts of the kingdom. Of this we are again assured by the recent inaugural address of the President of the Midland Institute of Mining Engineers—Mr. R. CARTER. In an able, eloquent, and exhaustive address Mr. CARTER remarked that the effects and tendency of recent legislation were amongst the subjects which appealed to the deliberative judgment, as they certainly affected the vital and professional interests of mining engineers. He then proceeded to say:—It was, no doubt, a wise and necessary policy, considering the vast extent to which mining operations had become multiplied, to establish a system of mining inspection, and to support a staff of professional and scientific gentlemen as officials under Her Majesty's Government, by whom the duties of such inspection should be discharged. Experience had demonstrated the prudence and good judgment with which the inspection had been carried out, and if all had not been accomplished which it was originaly hoped inspection would secure, it had certainly done much to improve the practical working of mines, and to bring such working into more complete harmony with the applications of mechanical and scientific research. Parliamentary regulations had now reached the operative duties of mining authority, and the supervision and management of mines were now only confided to those whose educational fitness had been tested by examination, and whose authority was recognised in virtue of the certificate granted by the examining board. The Act of 1872, notwithstanding its comprehensive scope, was not to be regarded as exhaustive of all that might be urged, either by the necessities of mining enterprise on the one hand, or the demand of mining industry on the other. The experience of the last five years had afforded but too obvious demonstrations of that proposition. They seemed to have reached an era when the province of agitation had gone beyond all reasonable bounds, and when every existing principle or established custom might be subjected to its invasion. No doubt there were many important changes of social and commercial policy, which were naturally incident to the progress and development of their vast natural resources, stimulated as they were by the ever-advancing results of scientific research. But there was a meddlesomeness and pertinacity in the spirit and exercise of modern agitation, especially in that which affected their mining enterprise, which made it as difficult as it was important to govern all direct.

It was impossible to conceal the fertile sources of difficulty which arose out of the multiplied risks attendant upon mining industry as compared with other departments of human toil, and because the future was pregnant with aggravation of all such risks, it was not to be wondered at when they saw a busy agitation seeking to occupy so inviting a field. There was still, however, a principle of responsibility peculiar to the profession of mining engineers, particularly with reference to the spirit of agitation which was so much fostered at the present time. By the peculiarity was meant that intimate and painful union which subsisted between the exercise of the profession and the fearful consequences which momentarily attended upon the management for which it was to a great extent responsible. Every day's experience testified to the disastrous consequences of neglect and carelessness, where all the advantages of daylight were present to facilitate active supervision and to secure obedience to establish regulations and authority. What then should be the amount of allowance and consideration for the altered circumstances of all the operations of a complicated system of a vast industrial occupation being carried on in a state of comparative darkness? In the midst of all that contemplative duty they had the appalling disasters from time to time occuring, so that there was no wonder such sad occurrences from the frequency and necessarily increasing magnitude of loss should beget a keener desire and more active efforts to obtain some form of alleviation or escape, or that the popular advocacy should be identified with some extreme forms. There was always danger of the interests which might be combined under popular agitation, so that at the present time there was necessity for the most vigilant and discriminating activity in order that the injustice and hardship may be averted, which future legislation might at an early date give rise to. He referred to the influence now being brought to bear upon Parliament and the Government in order to secure some further and more stringent legislation with regard to the responsibility to be hereafter associated with the conduct and management of mining and other industrial avocations. The importance of watching the progress of events in order that the interests of the profession might not be jeopardised, and its members fettered by augmented liabilities and penalties beyond the limits of propriety and justice, could not be exaggerated. The recent sad catastrophe in South Wales, occurring simultaneously with the fearful collision on the Thames, and other events of a like horrifying nature, would all tend to stimulate the exertions which have already been inaugurated, and unless timely efforts were brought to bear in defence of the owners and managers of mines the result might prove most adverse and detrimental to their interests and prospects.

It was clear that the most active promoters of early changes and additions to parliamentary enactments were to be found amongst the agents and directors of Unionism in trading industries; and, if past experience may be taken as any criterion of the future policy they would willingly adopt, then the rights of labour would soon be made the shrine upon which every other interest would be sacrificed, and a social revolution would be effected, the extent and consequence of which it was almost fearful to contemplate. Left to the agencies which were now so prominently active, it might be assumed that the mutuality of obligation in securing the safe condition of a mine was in principle unknown, as it was almost unrecognised. Flagrant breaches of discipline, and the corrective proceedings which were taken under its provisions, reminded them of the Mines Regulation Act, but where were those efforts which the workpeople were authorised under the Act to resort to for ascertaining from time to time the condition as regarded the ventilation and safety of the mine in which their labours were prosecuted? They were conspicuous by their absence, for it has been made no part of the advice given to the workpeople to exercise the powers with which recent legislation invested them. The enormous latitude which has been taken not only in mining but in almost every other department of labour since the legal recognition of Trade Unionism, appeared to be a fit subject for the most careful investigation before additional powers were granted in the same direction, and before increased liabilities were imposed upon their management the mining interests of the country should be considered, especially with respect to those influences which are are now exercised, and seriously affected that independence of authority on which a penal or pecuniary liability should necessarily rest. Considering, then, the great amount of professional skill at the present time being attracted to the mining operations in the country, it was quite within the reach of possibility to fetter the possessors of it with such penalties and objections as would deter the educated talent of the age from that important sphere of employment altogether.

In conclusion, the speaker said that the subjects he had alluded to would be amongst the most prominent for deliberation in the coming Session of Parliament. To them, however, might be added the proposition of direct compensation for personal injury in order to render the list complete of those measures which were being so eagerly agitated, and to which the most vigilant attention should be most carefully and sedulously devoted. Further legislation of the nature alluded to was fraught with the most dangerous consequences to the body of mining engineers, the members of which should make themselves conversant with the various measures which may be presented to Parliament, so as to adopt timely and adequate means for their individual and material defence and protection.

It is seldom that an address so valuable and instructive, as well as so opportune, is met with, and we have great pleasure in calling the special attention of our mining engineers to the extracts we have given from the production of the able and indefatigable President of the Midland Association, and for which he is entitled to the hearty thanks of every member of the profession in which he occupies most deservedly such a distinguished position.

AMERICAN IRON ORE.

We wonder how many of our readers have heard of Ishpeming? We are afraid that a good many of them would be obliged, after a rigid cross-examination, to admit that they were quite ignorant of the existence of what has hitherto been a mere speck on the map of the United States. Yet Ishpeming seems destined to greatness of some kind. Perhaps it may become a second Middlesborough, since there is every reason to believe that the ground upon which the city is built is one vast basin of iron ore, and that certain mines in and surrounding the corporate limits are merely the outcroppings of a stupendous mass of mineral. Diamond drills have shown during this now expiring year that Ishpeming is fairly built upon ore, and that the quantity is inexhaustible. The question which first presents itself to the mind of the almost bewildered observer is "Will this ore be vigorously attacked, so as to render it available for consumption? Or will it remain practically unworked in consequence of the low price at which iron is selling in the United States, as well as in other parts of the world?" Time alone can show which view of the matter is the correct one; but, probably, a beginning will be made upon the Ishpeming deposits; they will be worked to some extent, and if times improve with American metallurgy they will be attacked in a more systematic and vigorous fashion.

This discovery of a large—and indeed practically inexhaustible—additional supply of American iron ore appears to us to be a matter worthy of the attention of British ironmasters, and also of British ironworkers. The discovery ought, *prima facie*, to increase the power of the United States to produce iron at a cheap rate, and certainly this is a matter of extreme importance. Not only have we lost the sale of our iron upon American markets, but the Americans are also beginning to compete more and more with us, as regards machinery and iron, upon the markets of Canada, South America, and Australia. Anything which is calculated to increase the cheapness of iron in the United States is calculated also, then, to intensify American competition. This is a point which both our ironmasters and our ironworkers must take into their very serious attention. We formerly sent large quantities of iron, and especially of rails, to the United States, because we could make deliveries upon terms which tempted the Americans to do business with us, and which did not render them very anxious to develope the manufacture of iron upon their own account. But all this is changed. In 1873, and perhaps a little sooner, our ironmasters lost their power of cheap production; and not only have the Americans ceased to purchase iron from us, but they also now make iron on an extensive scale, and begin to export it in various directions.

The grave question which the English ironmaster has now to consider is whether he has regained, to any extent, the power of cheap production, or whether there is any chance of his doing so. With continually falling prices, and with the loss actual or threatened, of several important outlets for his products, the English ironmaster may well have cast about during the last year or two for the means of producing more cheaply, and we are not altogether sure that he has done so in vain. Coal and raw materials have declined in price, and labour—that difficult and hitherto almost uncontrollable factor—appears to have been taught in the stern school of adversity that it must either be content to work for lower wages, or else it will not find any employment at all. The power of the Trades Unions to resist reductions of wages, if it is not utterly broken, is at any rate, greatly reduced. Successive reductions of wages have been quietly announced during the past 12 months in the British coal and iron trades, and have been as quietly accepted by coalminers and ironworkers. We can but regard this as a favourable circumstance, as it shows that our working classes have at last returned to something of that docility under which they achieved their former industrial successes.

GOLD MINING IN VICTORIA.—The reports of the mining surveyors and registrars for the quarter ended June 30, for a copy of which we are indebted to Major THOMAS COUCHMAN, the Secretary for Mines, show that during the quarter there were employed in alluvial mining 13,046 Europeans and 9686 Chinese; and in quartz mining, 14,473 Europeans and 127 Chinese: giving a total of 37,332 persons. The approximate value of the mining plant was 1,950,474*l*. The number of square miles of ground actually worked upon was 1209¼, and the number of distinct quartz reefs actually proved to be auriferous was 3360. The total get of gold during the quarter was from alluvial, 64,993 ozs.; and from quartz, 122,601¾: together, 187,594¾ ozs. The quantity of quartz crushed was 214,981¼ tons, which yielded 101,879¼ ozs. of gold, or at the rate of 9 dwts. 14·14 grs. per ton of ore crushed; of quartz tailings and mullock, 7933 were treated, yielding 628 ozs. of gold, or at the rate of 1 dwt. 14 grs. per ton; and of pyrites and blanketings, 1461½ tons were operated on, yielding

3380 ozs. of gold, or at the rate of 2 ozs. 6 dwts. 6 grs. per ton. In the Ballarat district a marked improvement has taken place in the yield of gold during the quarter, the increase being over 1607 ozs., as compared with the previous quarter, and there would have been a still further augmentation had all the batteries been in full work.

THE PRIMAL ELEMENT OF METALS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Mr. Lockyer claims to have discovered by a long series of experiments, carried on by aid of the spectroscope, the momentous fact that there is but one elementary thing or substance in creation, this primal element being hydrogen, into which all other matter is resolvable, and from which, therefore, all the innumerable products composing the world must have been produced.

This great discovery will, in my judgment, prove to be the key to unlock all mining mysteries, and explain the true origin of metallargical formations. All metals are resolvable into vapour; it is clear, therefore, that they all were originally but vapour, and in all probability owe their origin and variety to the degrees of electrical action to which they have been subjected. Mr. Lockyer's discovery points the way to a more scientific treatment of the precious metals, and will doubtless lead to improved methods of reduction.

If, as Mr. Lockyer demonstrates, hydrogen is the primal element of all things, it must exist in all things in a latent state, and the phenomena of latent heat will, therefore, be more correctly described as latent hydrogen. It occurs to me, also, that this discovery simplifies electrical phenomena, and will prove that electricity does not travel, but exists through the latent hydrogen in every material on earth, and is merely tapped at each end of the uniting strings, as it were, of the primal element of which it appears to be the vitalising principle that gives it the endless variety of shape and form and use which constitute all the worlds that float in space.

The spectroscope has demonstrated the oneness of the law ruling all matter in our own, as in all other worlds, and the establishment of the additional fact that one primal element sufficed for all the wonders of all creation brings us more than ever face to face with the Creator, whose will, from all eternity, imposed on this one primal element the unchangeable laws that could alone have produced such unity of action throughout the Universe.

I have never been able to give the slightest credence to Mr. Darwin's theory of the origin of species, or the doctrine of "natural selection," holding it to be against all reason that a human being, gifted with a mind, should think it allowable to judge the works in creation by any other standard than that applicable to his own works and inventions; and as a man would be considered insane who tried to prove that cathedrals and houses formed themselves by "natural selection" from crude clay, or plain or moulded bricks, self-formed out of indigenous alumina, so the madness is infinitely greater in supposing that created works, with life in them, implying higher creative skill than that man can exercise, could have developed into species without the direct action and design of the Great Architect.

Mr. Lockyer's discovery of the one primal element will assuredly annihilate the "natural selection" theory by the fuller demonstration now gained of the everlasting unchangeableness of the laws ruling all inorganic matter, and the analogous argument that the same fixed purpose from the beginning regulated every successive step in organic creations. If the pressure of the atmosphere was taken off all waters would resolve themselves instantly into vapour. The whole world in fact is but vapour, or rather it is chained flame, and if released from the fetters imposed by God's will it would be dissolved, and the elements be melted with fervent heat.

Hydrogen is clearly destined to be the great heating power of the future, and its cheaper production by superheated steam passed through iron scraps is one great step in the right direction. If hydrogen can be cheaply reduced to a liquid state it may afford a condensed form of heat that will supersede all other substances for ocean-going steamers, and I venture the prediction that it will ere long be extensively used in the reduction of metals.

Blackheath, Nov. 29. JOHN ELLIOTT.

REPORT FROM CORNWALL.

Nov. 28.—The further advance in the standards is of even more importance in reality than it is in amount or in name. It shows that the current of improvement has set steadily in; that it was no mere spurt; and taken in connection with and as in some sense a result of the Banca sale (though prices in advance of the previous standards had been given) it shows that a more healty tone is ruling in the tin markets of the world, and thus affords another illustration of the well-founded character of the faith of those who believed, what we have always contended for, that Cornwall had the most "last." It is quite on the cards that we shall have a still further rise in the next fortnight; but it is hard to say what influence the meeting of Parliament may have on general trade.

It does not take much in the present juncture to inspire a very confident feeling of hope; we have been so certain of late that things had clearly reached the worst, and the results of the rise are both wide spread and marked. It has come just in time to prevent in several quarters a serious curtailment of operations.

There are several rumours afloat of the starting of chemical works in Cornwall, especially in the Gwennap district, and the Phœnix Chemical Works are about to be launched in the Callington district. The arsenic trade, like everything else, has been down of late, and perhaps it is too much to expect a very speedy and substantial revival. There is, however, New Consols, notwithstanding a very wide field open for the profitable introduction of the wet process of treating low produce and mixed ores, and a fortune to be made by any body who will take up the work in earnest with the requisite skill and sufficient capital Perhaps some unlimited company had better try it on; the limiteds have had their turn without any very satisfactory results.

If the china-clay trade is not brisk it is not for want of facilities in conducting it. Last week the steamer Sappho, of Bristol, arrived at Fowey at 10 A.M., was loaded with 300 tons of clay from the Cornwall Minerals Railway jetties, and left at 3 P.M. on the same day for Antwerp. She is of 889 tons register. Plenty of facilities here for conducting trade if only there was the trade to do.

One of the most satisfactory proofs of the economical management which is now the rule, and not as it used to be the exception, in our Cornish mines is the remarkable statement at Wheal Peevor that black tin can be raised there at 28*l.* a ton, every farthing received above that being absolute profit.

Boring machines are extending their domain. The Eclipse is likely to be introduced ere long into Botallack. This fine old historic mine is looking capitally, and its accounts are a model of what accounts should be.

A capital paper on rock-boring apparatus was read by Mr. Darlington at the meeting this week of the Mining Institute, which we are glad to learn will be published in full in its Transactions. Mr. Darlington, in the course of his paper, which was a very voluminous one, said too much of the economic result was at present attributed to the boring machine, and not enough to the proper and effective organisation of the work. The boring machine must of necessity be a good and reliable one, and constructed so as to withstand the heavy wear and tear underground. It should be of sufficient power to bore the holes moderately quick. Another thing of almost equal importance was that the apparatus on which the machines were mounted should be of ample strength for the purpose of holding them more firmly to their work when under the influence of a rapid succession of blows. For permanent use very high speed compressors were not desirable. They should, however, be constructed so as to afford a maximum result for the power expended to produce it. For the purpose of removing the centre cut the strongest explosives should be employed, and particular care taken to detonate, and not burn, the explosive. It would be important to ascertain if, by increasing the diameter, a lesser number of holes would not suffice for removing the entire cut or sink. Electric blasting offered in itself an element of security and success. It would be well, therefore, to ascertain what increase to the normal rate of speed would result, and what percentage of explosive might be economised by the use of electric over safety fuse. It was scarcely open to doubt that the time was not far distant when boring machinery would form a part of every mining plant. Capt. Teague, who opened the discussion, expressed an opinion that Cornish mining would in future be greatly dependent on boring machinery, and Mr. Gofflin, in moving a vote of thanks to Mr. Darlington, was very pleased to know that there had been such a change of feeling in regard to boring machines. Formerly it was said that boring machines would be of no use, considering the hard rock they had to deal with in Cornish mines. He was always of opinion, however, that what could be done by hand labour could be accomplished by machinery.

The Penzance Corporation have decided to celebrate Sir Humphry Davy's centenary on Dec. 17, by organizing an exhibition of scientific apparatus, and to hold a public meeting to consider the advisability of devising means to still further commemorate the event in the spring, when several English and foreign savants will be invited to attend.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Nov. 28.—Coal for furnace and forge purposes is very slow of sale and prices are very low, indeed they are much lower than they were in 1871-2, the years preceding the extraordinary period of inflation. Nominally the quotation for furnace coal east of Dudley remains at 9s. per ton, but contracts are booked at below these figures. If trade does not improve there is, I fear, a likelihood of two or three of the extensive collieries being stopped for a time. The pig-iron business is no more satisfactory than for months past. Indeed, makers are still further curtailing the output. Makers are in a little better position than a week ago in the matter of their raw materials, as limestone has been reduced from 4s. 6d. to 4s. a ton, the result of the limestone miners having now submitted to a drop of 6d. a day in their wages. The remuneration of the limestone miners is now at the rate of 3s. 2d. per day, but they are only employed about half time. Finished iron is inactive in all but a few instances. The price of the common bars of the Earl of Dudley is 8*l.* 2s. 6d., and the bars of most other "branded" houses are, as usual, 12s. 6d. a ton below this. The finished ironworkers are taking time by the forelock, and are, as was to have been anticipated, trying to prevent the change in weight which will be necessary after January 1 under the new Weights and Measures Act, working to their disadvantage. On the contrary, they desire to make capital out of it. At present they are paid upon the basis of 2400 lbs. to the ton; now that the statute ton is to be 2240 lbs. they will of necessity henceforth be liable to a proportionate reduction in their wages. If the masters determine to drop wages in proportion to the alteration in weight then the men have instructed their delegates to give notice to the Wages Board for a reconsideration of the wages question, with a view to securing a rise of 10 per cent.

The Tipton District Committee, under the Mines Drainage Acts, have confirmed their resolution to purchase the Gospel Oak pumping-engine of Messrs. Crazebrook and Aston for 500*l.* The question was, it will be remembered, referred back at the last general meeting of the Commissioners.

The Cannock Chase miners have refused to allow the wages dispute to go to arbitration, and to the number of between 3000 and 4000 they are this week out on strike. The Earl of Shrewsbury's Brereton collieries is the only exception; here the men continue on. On Tuesday notices were posted at the various collieries that the employers were prepared to allow a resumption of work at a reduction of 3*l.* per holer's day, with an increase of one hour's drawing per day, or at double the reduction with the present hours. The men, however, still decline to go in on any terms but their old wages and hours.—To-day the Cannock Chase miners held a meeting, and again refused either to accept lower wages or to work longer hours. They likewise discourage negociations between batches of men and the masters for whom they work. The Earl of Shrewsbury's Brereton Collieries will be put to stand after Saturday next if the colliers there employed do not accept the terms against which the Cannock Chase colliers proper are now so resolutely striking. A meeting of the Iron Trade Wages Board was held to-day in Birmingham, when it was resolved to reduce blast furnacemens' wages 10 per cent.

Trade prospects in North Staffordshire are not by any means improved as the result of the determination of the shareholders of the Chatterley Iron and Coal Company (Limited) to wind up the concern in liquidation. The ironstone miners of the company, between 800 and 900, are under notice for a drop in wages. It is believed that an amicable settlement will be come to. The Stafford Coal Company at Great Fenton have given notices of discharge to their operatives, numbering between 200 and 300, and it is feared that the colliery will be shut down as trade remains so bad.

Mr. George Hollins, manager of Weston Coyney Colliery, was charged at Longton, on Wednesday (at the instance of the Home Secretary), with several violations of the Coal Mines Regulation Act. He was fined 15*l.* and costs for neglecting to provide an adequate amount of ventilation in the mine, and 5*l.* and costs for not providing man-holes (recesses for men to get out of the way of passing wagons) at the prescribed distances. At the same Court a collier, named John Hilton, was sent to prison for 14 days for taking off the top of his lamp while at work in the Oldfield Mine.

LATER.—The Chatterley Company's ironstone miners have offered to submit to a drop of 5 per cent., and the offer is now under consideration by the manager. At present the pits are idle. It is believed that the Duke of Sutherland and Mr. Pinder, two of the largest shareholders in the Stafford Coal Company, have made arrangements to subscribe the necessary capital for continuing on the pits.

CANNOCK CHASE COAL FIELD.—The men having declined the terms offered by the masters after the meeting on Monday, not having sent representatives from any colliery to meet the masters' committee, and still adhering to their refusal to accept arbitration, the masters passed a resolution at their meeting at Birmingham today (the 28th inst.) strongly deprecating the unreasonable conduct of the men, and unanimously determined not to re-open their pits until a substantial reduction in wages is conceded by the men.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Nov. 27.—The scheme for a railway from Ruthin to Carrigydruidion, through an almost unknown and almost inaccessible part of North Wales, is revived; but there is some doubt, I should say, if the requisite capital could be obtained. The finding of the money is also, I fear, the rock on which the railway scheme from Oswestry to Llangynog will founder. Meetings have been held in various places in support of the undertaking, but there has been marked lack of enthusiasm, and an unwillingness to incur money responsibilities. This is explained by the fact that money to cover preliminary expenses has been subscribed more than once. At the meeting held last Wednesday at Oswestry Mr. Parry Jones, solicitor, stated that his own office had spent 1000*l.* on the preliminaries of a similar scheme, not a penny of which had been recouped. The Mayor of the town, too, who presides, made the just remark that if the landowners who were now willing to take the price of their land in shares had been willing to do this five years ago a line would have been made. In the meantime it is said the old scheme, for which an Act was once obtained, of continuing the Potteries, Shrewsbury, and North Wales Line from Llanyblodwell up the Tanat Valley, is to be resuscitated.

A meeting for the revival of the scheme for constructing a railway from the slate quarry region of Bethesda to Bangor was held in the latter town last Thursday. A deputation was appointed to wait upon Lord Penryn and ascertain his lordship's opinion. With all deference to his lordship, I would ask these worthy people of Bangor and Bethesda does Lord Penryn want a railway, and do they think he will lend his aid to any rash scheme unless compelled by the united voice and efforts of the whole neighbourhood? He has his own railway to his own quarries already. It not that enough?

Notices have been issued to the workmen at the Llanberis Slate Quarries that at the monthly letting of the bargains on Friday next there will be a reduction of 7½ per cent. to the bargain takers, making a total of 20 per cent. reduction during the last two months. The labourers will be reduced 10 per cent., and the daymen 5 per cent. A similar reduction will probably take place at the Penrhyn Quarries to-morrow.

The closing of two slate or rather slab manufactories in Bangor, referred to in the Journal last week, was owing to a dispute of the men with the proprietor, Mr. Humphreys, who wishes to extend the hours of working on Saturday until 4 o'clock. To this the men object, not being willing to work longer than 1 o'clock as at present, so they refuse, unwisely as I think, to work.

A company has been formed to work the South Dorothea (late Cornwall) Slate Quarry, in Nantlle. This quarry is only separated by a lane from the Great Dorothea Quarry, and with careful development should make a very good quarry. But my old objection to such names holds good here. Why alter the name? Why by calling the quarry South Dorothea should the promoters seek to borrow reputation from the successful quarry? This surely they have no need to do.

Small profits and quick returns is to be the principle guiding the adventurers in the Pennerley Mine, Shropshire. The best machinery, the most powerful explosives, and large output. This is the right way, and I wish them success.

The question has arisen in my mind in looking over "Mineral Statistics year by year whether one cause of the want of success in mining operations does not lie in the minute degree of attention which a manager who has many mines under his care is able to afford to each. The number of mines superintended or otherwise by many mine captains in Shropshire, Montgomery, Cardigan, and Carnarvon is considerable. A saving may be effected in the small salary paid to him by the owners of each mine, but would it not be better for two, or at the most three, owners to pay him liberally, in order to enable him to concentrate his attention on their particular business. Would the system now in vogue pay in other businesses or professions?

One is glad to hear of improvement in the deep driving at Parys Mountain. Would Capt. Mitchell just add to one of his next reports the relation of the forebreast of this driving to the bottom of the great open-cast? I for one would esteem it a favour if he will kindly do this.

TRADE OF THE TYNE AND WEAR.

Nov. 27.—The Coal Trade has been a little more brisk during the week, the shipments were large, and at Tyne Dock and other points on the Tyne they will amount to an average for the season, or nearly so. At the Tyne Dock 29,000 chaldrons were shipped, or nearly 90,000 tons, and shipments are improving this week, as there is a good supply of large steamers and sailing vessels. There is little improvement in the manufacturing trade on these rivers; it is still very dull. Messrs. Redhead, of South Shields, launched a large steamer on Tuesday. There is a little life in the chemical trade; buyers are numerous at a slight advance, but a considerable advance on present prices is asked for delivery over next year, and this checks business, but still shipments are fair and stocks are light. The differences between the masters and men at the steam coal works north of the Tyne have now been nearly all adjusted, and some little increase in the demand may be expected, and as no stocks of consequence are held some improvement in the work done at the collieries may be looked for. As the working charges will be brought down there is little doubt that the producers of this coal will be able to compete with other steam coals, especially as they have the advantage of the finest port in the kingdom, and steamers of the largest size running to all parts of the world. In Durham there is little change; the demand for house and gas coals continues good, but there is no change in prices, and the demand for manufacturing coal is still sluggish. The men at Wardley Colliery are still out, refusing to go in at the proposed reduction in rates. The Hebburn Colliery was also closed on Saturday, the owners giving as the reason for this step the unremunerative state of the trade; at present they do not ask for any reduction in prices. This work is one of the oldest in the Tyne, and situated very near the river; about 1300 tons per day were raised. The demand for coke is fair at present. It is expected that a demand for a general reduction in the prices paid in Durham to the miners will be made shortly—that is, this demand will be made by those owners who are members of the Durham Colliery Owners' Association.

By invitation of Messrs. I. Lowthian Bell and Co., the members of the North of England Institute of Mining and Mechanical Engineers met on Thursday, at Browney Colliery (Brandon Station, North-Eastern Railway), for the purpose of inspecting an apparatus at work at the colliery for saving labour and expense in the manufacture of coke, and also of inspecting a Schiele fan, which the owners had kindly and generously opened to the inspection of the members. The visitors, to the number of about 80, were received at the colliery by Mr. A. L. Steavenson, the courteous, enlightened, and intelligent managing viewer of the colliery, by whom, with the assistance of subordinates, they were conducted over the works. The first department of industry visited at the colliery was the coke ovens, where there is in operation the patent of Messrs. T. H. Bell, Harle, Cleugh, and Co., of Middlesborough, for economising labour and expense in the manufacture of coke. The apparatus consists of a belt of iron with plates of 2 ft. 4 in. in breadth, running at a speed of 60 ft. per minute along the front of the ovens, and into this belt the contents are delivered. The belt delivers the coke on to a Jacob's ladder, by which it is tipped into wagons, so that the apparatus is both drawing and filling. The length to which the apparatus has been applied is 200 yards, covering a range of 47 ovens, and is operated by a single engine of 15½ in. cylinder and 3-ft. stroke, which is capable also of actuating the whole of the ovens (200 in number) which it is contemplated to put upon the colliery. The colliery itself has been in operation for about four years, and hitherto for coking purposes has used the ordinary manual method of drawing and loading coke. The present method, with Messrs. Bell's patent, costs less than one-half for drawing and filling.

Formerly the workman was paid 1s. 9½d. for drawing an oven alone, without filling; now he is paid 1s. 2d. for drawing alone, the filling being by mechanical and not by manual means. Each man draws four ovens, for which he is allowed a period of time amounting to five hours, and in the result is a benefit both to the men and to the owners. The apparatus has been in operation at the colliery now for about six weeks, and is so successful and satisfactory that the owners are preparing to apply it to the whole of the ovens (200 in number) upon the colliery. It may be mentioned that the ovens are of the ordinary beehive type, but are heavily charged, the charge being about 6 tons 10 cwts., and the yield about 4 tons. They draw about thrice a fortnight. The apparatus is very easily driven. Attached to the ovens are the horizontal boilers, each 60 ft. in length by 5 ft. in diameter, for which the heat and other products from the coke ovens is utilised, so that nothing is wasted. Even on the clearest day no black smoke is seen to issue from the chimneys. After inspecting Messrs. Bell's patent the visitors proceeded to inspect the Schiele fan blast. It is placed at the bottom of the shaft working the Brockwell seam, 100 fms. from the surface, an upper seam, the Busty, being situated at a depth of 80 fms. from the surface. The fan is 7 ft. in diameter, runs at about 200 revolutions per minute, with an engine running at 100, and gives 35,000 cubic feet of air per minute into the mine. It is worked by a horizontal engine of 9-in. cylinder and 12-in. stroke. After coming out of the mine the visitors were entertained to refreshments in the draught office. Mr. A. L. Steavenson, the resident viewer, representing Messrs. Bell and Co., the owners, welcomed the visitors, and gave some practical details respecting the colliery. Amongst the gentlemen present were Mr. A. L. Steavenson, Mr. William Cockrane, Mr. Brodie Cockrane, Mr. Wm. Lishman, Etherby; Mr. J. B. Simpson, Steels; Mr. Thomas Crawford, Littleburn; Mr. Wm. Crawford, Littletown; Mr. Henry Lawrence, Grange Ironworks; Mr. Alexander Ross, Shipcote: Mr. S. Lindsay, Galloway, Newcastle; Mr. B. C. Browne, Newcastle; Mr. Atkinson, Her Majesty's Inspector of Mines: Mr. Robinson, Bishop Auckland; Mr. W. H.

Hedley, Consett; Mr. Gooch, Lintry Green; Mr. Mackenzie; Mr. Thomas Heppell, Birtley; Mr. W. Heppell, Bransepeth; Mr. R. I. Thorpe, Newcastle; Mr. M. W. Brown; Mr. Charles Bunning, Newcastle; Mr. G. H. Ramsay, Walbottle; Mr. Ernest Bell, Middlesborough; Mr. J. W. Marley, Darlington; Mr. Straker, Willington; Mr. R. Thompson; Mr. Hardy, Preston, North Shields; Mr. William Horsley, Chirton House; Mr. J. T. Forster, Washington; and Mr. Spiel, Framwellgate Moor. Mr. Steavenson mentioned that Mr. Isaac Bell would have been there that day but that he had to attend a directors' meeting. Mr. Ramsay, addressing the assemblage, said he thought it their duty to thank Mr. Steavenson for his kindness in having invited them there that day. He complimented Mr. Steavenson upon the largeness of his mind in showing the visitors all the measures he had taken to cheapen the production of coke, and mentioned that in his own colliery, in the year 1845, he used the electric light. They could not be too thankful to Mr. Steavenson for inviting them there that day, and he proposed that gentleman's good health, with long life and prosperity.

Mr Cochrane, vice-president of the Institute, thanked Messrs. Bell Brothers for their very great kindness in having invited the members to visit such a splendidly laid out colliery, both above and below ground. Mr. Ernest Bell responded on behalf of the owners, He said he was exceedingly sorry that no member of the firm was present, but they always desired to give every information they possibly could to enable others to improve the manufacture of coke. He hoped that some day they would have the pleasure of again inviting the members of the Institute to visit them, and to give them further information. The visitors then proceeded to inspect the integrator, and returned from Brandon by the 2·46 P.M. train.

Though the market at Middlesborough last Tuesday was generally devoid of animation, and the general tone was declared flat, a few more enquiries were reported for pig metal. Makers have been more willing to make concessions in some instances, and hence merchants and consumers have bought more freely within the last two or three days. Transactions for pig-iron have taken place at about 36s. 6d., less 1 per cent., for No. 3, but the general quotation is 36s. 9d. to 37s. for that quality. The merchants' figure is about 36s. net, but they have but little iron in hand, and consequently are only doing a restricted business. The makers' rate for forge iron is 9d. per ton below their quotations for No. 3. Many of the leading makers are refusing to sell. The shipments of pig-iron have again been restricted, and to Scotland there is another falling of above 3000 tons shown on the week. Up to the present time there has been a decrease in the deliveries to Scotland as compared with 1877 of above 12 000 tons. Before the Glasgow Bank failure there had been an excess in the deliveries. The iron now being sold, unless it be in very well known cases, is for cash, as some of the makers take lower rates in order to avoid any sort of risk, as a good deal of money has been lost within the last two or three years from failures. There has been rather more demand for inland account for Cleveland iron, the low prices tempting inland consumers, and at the same time enabling Cleveland producers to compete successfully. The wages questions are still agitating the district; the Cleveland miners' representatives meet the mineowners to-morrow, and the arrangements for the arbitration in the finished iron trade are being pushed forward. The blast-furnace men are under notice of a reduction of 5 per cent. The reports received as to the condition of the finished iron industry continue unsatisfactory, though there are some hopes that the plate trade will present a better aspect with the turn of the year. Plates are now 5*l.* 17s. 6d. to 6*l.*; ordinary bars, 5*l.* 5s. to 5*l.* 7s. 6d.; angles, 5*l.* 7s. 6d. to 5*l.* 10s.; boiler plates 7*l.* The engineering establishments, with few exceptions, are rather quiet. The subject of steel manufacture still greatly engages attention in the district. The steelworks at Eston are well employed. Coal and coke quiet. In the Cleveland iron market yesterday it was asserted that unless there was some improvement in the New Year the prices of iron will have to be yet lower than at present, and that additional furnaces will have to be blown out.

The lead trade, which is the staple industry in the Alston district, is in a very depressed state. Ayleburn Lead Mine, a small one, has been closed. The chief mine in this district of the London Lead Company is situated in Nenthead, and matters are in such a gloomy state that a further reduction in men and wages, it is feared, will take place at the close of the present year. The sinking of a shaft at Rodderup Fell in the winze has, within the past few days, been let by tender, and it is stated that the accepted tender was at the rate of 27*l.* per fathom, the highest being 80*l.* per fathom; the average rate for the work in ordinary good times would be about 70*l.* per fathom. The men employed in hewing the "crow" coal used in the limeworks of the Alston Lime Company have received notice of a reduction of 1s. per ton, which will take effect on Monday next.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Nov. 28.—At the lead mines in Derbyshire a steady business is being done, but the number of really healthy concerns is limited, if taken according to the quantity of lead ore they produce. With the present price of lead small concerns certainly cannot be worked at a profit, and it is only where there is a large field, with the best machinery and appliances, that mines can be made to pay a fair dividend. Barytes, the staple of which is supplied from the lead mines, is now extensively used in the production of paint, and a large quantity of the latter is now being turned out in the neighbourhood of some of the lead mines, as it is free from the poison which characterises whitelead paint. Plentiful as ironstone is in Derbyshire, the quantity now raised is far below what it was some years since, although the consumption of ore is so much greater. The reason of this appears to be that it can be raised in other counties, and the carriage rate paid, at a lower cost than it can be worked locally. Winter and wintry weather have had the effect of improving the house coal trade in a marked degree, so that the miners are now comparatively well off to what they were a few months ago. Several of the leading collieries, including Clay Cross, Langley Mill, Tibshelf, Hucknall, Grassmoor, and Staveley, are sending a heavy tonnage to the Metropolis of house coal, whilst a good deal is also being sent into other parts of the South as well as the West of England. For other qualities, however, there does not appear to be much doing, for, whilst there has been a falling off in the consumption of steam coal for the blast furnaces at home, less is being done in engine fuel with Lancashire, and a still further decline may now be expected, owing to the closing of several of the cotton manufactories. The business doing in pig-iron is still limited in extent, and far from profitable, and no improvement can be expected this side of the present year. In manufactured iron, also, there is considerable slackness, with a diminished number of workmen. At Dronfield a large order is being executed in steel rails to the amount of 6000 or 7000 tons, for the Great Indian Peninsular Railway, so that, with other orders in hand, will keep Messrs. Wilson and Cammell in full swing for some time to come.

It is a long time since trade was really so bad in Sheffield as it is at the present time, or when so much distress existed. This time last year affairs were bad enough, but now they are far worse, without the slightest prospect of their improving. On Tuesday a meeting convened by the Mayor was held, and a subscription entered into for the relief of the unemployed, when upwards of 3000*l.* were promised, but it is estimated that about four times that amount will be wanted to meet the requirements of the numerous families that are in all but a destitute state. The table cutlers have been very quiet for a long time, but a few orders have been sent in from the home markets for the Christmas and New Year. The armour-plate mills have been doing a very moderate business, but Government are giving out orders for plates made of steel. Puddlers and millowners are amongst the worst employed, for the requirements of shipbuilders and boilermakers are considerably less than they were. Bessemer makers continue to do very well for rails, and are still in steady request, more especially for exportation, Australia taking considerable quantities of them, as well as of other Sheffield manufacture. Makers of saws, razors, and files are not doing so well as could be desired. In the out districts trade generally is anything but good, and at Rotherham it has been found necessary to raise a fund to meet the distress which prevails. At the Elsecar Works of Mr. G. Dawes, a number of the puddlers have received notice to leave owing to the slackness, whilst the men engaged in other branches, with the exception of those connected with the blast-furnaces, have agreed to a reduction of 5 per cent. in their wages. Throughout South Yorkshire the house coal trade has improved of late, and the miners are now working very well. There was a stoppage for a day or two at one place, where the men struck, but the dispute was settled owing to the intervention of the chiefs of the Miner's Association. The business doing with the Metropolis has improved of late, and a great deal more could be done were it not for the railway rate being so high. The exportation of steam coal to the North of Europe has fallen off considerably from the Humber, whilst the home demand is less than what it was; the consequence is, that stocks are now beginning to accumulate, seeing that the two descriptions of coal have to be got together.

The usual notice has been given that an application will be made to Parliament for power to supply certain colliery villages in South Yorkshire with water both plentiful and pure from one of the rocks connected with the coal measures. The scheme is that of Messrs. Joseph Mitchell and Peacock, the well-known mining and civil engineers, and as there is no doubt but what the Bill will pass a great boon will be conferred on the inhabitants of several large and populous districts.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Nov. 28.—Another great find of coal has been made in the district Some 310 yards from the surface the owners of the Marine Rhondda Colliery, near Pontypridd, struck a vein of coal, which is believed to be the Aberdare 4-ft. vein. The Hirwain Iron and Brass Foundry has been sold by auction to Mr. T. Llewellyn, of Hirwain, for the sum of 1365*l.* The state of the Iron Trade is no better. For the last four years there has been a downward tendency, and it cannot be admitted that prospects look any brighter. There is no change in prices, and masters often hesitate to accept orders offered in consequence of the lowness of quotations. But even with the low prices which obtain there is no active demand for any description of iron. Clearances during the week have been very small. Few of the works show any activity; many are only just going. Rails are in but poor request, and at late rates. Bars are unusually quiet, even for these dull times. Steel rails are moderately well enquired for, but not quite so actively. The Copper Trade of Swansea is dull. The Tin-Plate industry is a little improved, for prices are firmer, and have an upward tendency. Doubtless this is the effect of the restriction of make.

Coals are in active request on foreign account, especially for the Mediterranean. Shipments during the past few days have been rather larger. The demand for steam qualities is good, but there is not the least change to note in prices. House coals are not quite in such good request as is general at this season of the year, but still there is a steady enquiry. The collieries as a rule continue to be irregularly employed. As for the Patent Fuel Trade, dulness is still its prevailing characteristic.

A meeting of the examining board under the Mines Act, 1872, was held on Tuesday, at the Town Hall, Cardiff. Present—Mr. G. T. Clark, Dowlais, in the chair; Messrs. W. Adams, C.E., Cardiff; J. Glasbrook, Swansea; S. Forster Brown, C.E., Cardiff; Evan Daniel, C.E., Cardiff; G. Tasker, Merthyr Tydfil; W. Hill, Neath; T. Phillips, Aberdare; and the secretary, Charles Henry James, Merthyr Tydfil. It was resolved that the next examination for the granting of certificates of competency under the Mines Act, 1872, be held at Cardiff, on Tuesday, Jan. 28, 1879.

REPORT FROM THE FOREST OF DEAN.

Nov. 28.—There is little change in this district commercially since our last report. The only bright spot on the outspread gloom of the district characterises the coal trade, which well sustains its recent improved activity. The other industries are as dull as dull can be—the iron trade especially so, in nearly all its branches. And even as it regards the coal trade, the prices are such that profits do not ensure satisfactory dividends upon invested capital, nor good wages to the working colliers, except to such as have hit upon good takings, where the stalls are more productive or more easily worked. The almost constant theme for hope is the completion of the Severn Bridge, when it is expected that that important outlet for Forest produce will lead to marked and permanent improvement. Industries in West Dean are especially limited, very little being doing at present, and the same remark applies, though less severely, to all works in East Dean, excepting the collieries and the coal trade. An experiment has been made at a large colliery (Trafalgar) with the electric light, and with satisfactory results for one occasion, but further trials must be made before sufficient data can be obtained from which conclusive deductions can be drawn, so as to decide whether it may be introduced as an element of economy in lighting collieries. During a night several tons of coal are burnt for the purpose of securing light to work by, and if the electric light can be supplied at a much less cost the coal could be economised by substituting the electric light in the place of the coal.

There is still, however, some agitation going on at Ruspedge and Sewdley on the question of nuisance arising from offensive odours, and what is called polluted water, but the abstract of analysis of samples of water, which we furnished in a recent report, ought to have shown complainants that much misconception existed on the subject: and with regard to offensive or deleterious odours, an attempt will be made by the sanitory authority to extinguish or at least to minimise them. We fear that the principal complainers are incapable of being enlightened and convinced by chemical analysis and philosophical evidence, but having surrendered themselves to prejudice will adhere to it, thinking thereby to exhibit an example of firmness, whereas it is one of stubbornness.

COPPER.—The following figures represent the exports of copper for the first ten months of the years named:—

	1876.	1877.	1878.
Tons	9795	8954	15,337
Average value	£84 15 0	£76 15 0	£70 3 0

WEST CRAVEN MOOR.—Few mines are opening out so well as this, which promises to become one of the richest properties in the North of England. They have 12 points to value for lead ore, and very considerable reserves of ore ground. The first parcel of pig-lead sold from this mine realised 21*l.* per ton, the last 15*l.* With pig-lead at 21*l.* they would soon enter the Dividend List. The various points are worth 9 tons of lead ore per fathom—a proof they have a rich property. They have sold about 2500*l.* worth of ore, and with a better price for lead this mining property will rank with the best in the country.

THE ABERLLYN MINE.—A shareholder who has just returned from the mine writes—"In the *Mining Journal* of Sept. 14 attention was called to the four setts comprised in the D'Eresby Mountain group of mines—the D'Eresby Mountain Mine, the D'Eresby Consols, the Clementina, and the Aberllyn. With respect to the last-mentioned mine (the Aberllyn), it was pointed out that, owing to the exceptionally favourable character of the indications in the workings, and its peculiarly advantageous position as regards an unfailing water supply and easy transport of the ore, the Aberllyn promised to become one of the finest mines in the North Wales district. Since that date the works, both underground and at surface, have been energetically pushed forward, and the prospects of success then entertained have been largely increased. Without going into details, it may be mentioned that the incline plane has been completed, the roads made, the wheel-pit built. The other surface works are fast approaching completion, and the crushing machinery will be on the ground in the course of a few days. The great Gorse lode, which is proverbial in the district for its richness, is being laid open, and the adit levels will render almost immediately available a large extent of productive blende ground. Already about 200 tons of blende-stone have been brought out, and now await the crusher. In the coming year large and progressively increasing sales may be expected. The supply of water for dressing and other purposes is unfailing, and the returns of blende will only be limited by the supply of labour, which is abundant. At the lowest estimate 2000*l.* will be the result of the first year's working, even at the present low price of produce, and as the development of the great Gorse lode proceeds this amount will be largely increased. But the important point to be borne in mind is that in the deeper workings under the blende large and rich deposits of lead are almost certain to be found, because the experience of all practical lead miners is that in the particular formation which characterises the geology of this district lead in abundance is generally found beneath the blende. The mine deserves all the good which has been said about it, and every indication leads to the belief that shortly the Aberllyn will stand high in the list of dividend-paying mines."

THE RAILWAYS OF NEW SOUTH WALES.

It must be satisfactory to all interested in the welfare of New South Wales to find that the results of a review of the transactions of the railways during the past year show a steady increase in the prosperity of this large and important portion of the public works. Not only have the lines of railway been considerably extended, so as ultimately to assist in developing the resources of comparatively remote districts, but in their immediate results they have proved to be highly successful. The expenditure for construction was (according to the report of the Commissioner of Railways for 1877, just issued in Sydney, and for an early copy of which we are indebted to Mr. R. D. Adams, of that city) 9,314,500*l.*, upon which the interest was 443,688*l.*, or 4·76 per cent. The capital expended on lines open for traffic was 8,883,177*l.*, upon which the interest was 4·81 per cent. The net earnings were 396,935*l.*, yielding 4·26 to the total capital expenditure and 4·47 per cent. to the capital expended on lines open for traffic. The interest paid by Government was, therefore, only ·50 and ·44 per cent. in excess of the percentage of net earnings to total capital and to capital reproductively employed respectively. At the close of the year 598 miles of line were open for traffic, and 217½ were in course of construction, to be completed by Dec. 31, 1880. The rolling stock consisted of 133 locomotives, 352 coaching and 2806 goods vehicles. The number of employees was 3289, and the wages paid 305,581*l.* 16s. 8d., being an increase of 68,404*l.* 17s. 10d. over 1876. The cost of the railway materials, in the conveyance of which 92 vessels were employed, amounted to 375,341*l.*, and the freight and insurance to 31,169*l.*, making a total of 406,510*l.*

Doubts have been expressed in New South Wales, as in England, whether the coal traction is not undertaken at a loss. On the South and West lines it produces the smallest net profit per ton per mile, but in the aggregate contributes more largely to the net revenue than shale or road metal. If the charges for the carriage of all items of traffic are to be proportioned to the cost of their conveyance the rates for the traction of coal, shale, road metal, &c., must be largely increased. The effect of this would, of course, be in many cases to paralyze production; the traffic would cease altogether, and although the loss would be inconsiderable as regards the railway profits, the effect upon the general prosperity of the country could not be otherwise than injurious. Without, then, giving effect to the proposition that the charges should be proportioned to the cost the question is—Do the present charges represent what each special line of traffic alluded to can bear without diminishing the quantity produced? This question can only be decided by a close investigation into the circumstances of each case. In the meantime it is gratifying to know that though in one or two instances the earnings only slightly exceed the cost, the charges in every case more than cover the working expenses. The wool traffic, notwithstanding the protracted drought which diminished the yield of wool (there were 25,269,755 sheep on Jan. 1, 1877, and only 21,521,682 on Jan. 1, 1878, showing 3,748,073, or 14·83 per cent. decrease), showed a material increase, proving conclusively that as railways are extended into the border territory of the colony the tide of traffic is turned slowly but surely towards the capital. The total revenue from wool traffic was 46,536*l.* in 1877, against 40,253*l.* in the preceding year: increase, 6083*l.*

The variations in the export trade of New South Wales coal have given rise to considerable speculations as to their causes. The reduction in the quantity shipped in foreign ports in 1876 was due some aver to the high price of coal charged at Newcastle, while others contend that these shipments are governed solely by considerations of freight requirements, owners being unwilling to lay on ships for ports at which there is no prospect of speedily obtaining freight for the homeward voyage. It is more than probable that the latter is the true cause of the variations, for if the former were the cause it would be only reasonable to expect that so long as the price of coal remained unaltered at Newcastle the decrease in the quantity shipped to foreign ports would continue. The returns, however, for 1877 show that instead of a decrease there has been an increase in the shipments, and to ports which in the previous year displayed the greatest falling off. The exports to Hong Kong, China, Japan, Manilla, and Java were 119,331 tons in 1875, 62,003 tons in 1876, and 131,104 tons in 1877. There was a slight falling off in the exports of coal to San Francisco, to which port the largest quantity sent to foreign places is shipped. For the three years ending 1877 the exports were 96,336 tons, 88,522 tons, and 83,557 tons respectively. The surprise is, however, not that there should be a falling off, but that coal should be taken from Newcastle to San Francisco, considering the number of ships from English ports which arrive there with coal as ballast, or carried at a merely nominal charge for freight, for the purpose of obtaining a returning loading of breadstuffs so largely exported from California to Great Britain. The fact that in the face of these adverse circumstances the colony still exports large quantities of coal to San Francisco may be accepted as evidence that within certain limits the price (at present 14s. per ton) charged at Newcastle for coal influences but slightly the trade, and that the shipments are taken not to obtain a profit from the freight *per se*, but in order to secure at San Francisco a profitable cargo for the homeward voyage.

As to the matter of compensation for accidents the railway servants in New South Wales have great reason to be satisfied. In cases of permanent disablement or loss of life it has hitherto been the practice for Parliament to authorise the payment of a sufficient sum of money to make reasonable provision for the sufferers or their families, and when the injuries have been only of a temperary nature full or part pay, according to circumstances, has been allowed until duty could be resumed. In England the practice is very different. Here the legal relationship between the railway companies and their employees, as between master and servant, is strictly observed, rendering it very difficult to obtain compensation in case of injury or death, even though the accident may arise through the neglect of the companies in not adopting proper means for the protection of their servants. Under the general law which applies to railway service, in common with all other spheres of employment, a servant can only claim compensation for injuries sustained in the execution of his duty when such injuries are due to the personal fault or negligence of his master, but not when caused by a fellow-servant. The Royal Commission (three dissenting) express the opinion, after fully discussing the matter, that railway servants have just ground for seeking that exceptional measures should be adopted for their protection, and recommend that the company's officials entrusted with executive authority should no longer be deemed merely fellow-servants; but the Commission do not propose that the responsibilities of the companies should extend to cases in which accidents occur through the negligence or misconduct of *bona fide* fellow-servants.

During the year 33,707 passenger trains and 23,532 goods trains were run a distance of 2,106,802 miles. The average earnings amounted to 815,920*l.*, and the working expenditure to 418,985*l.*, or 51·35 per cent. of the earnings. The number of passengers who travelled was 2,957,144, of whom 703,325 were first-class, and 2,253,819 second-class. Included in this figure are 6749 season ticket holders, representing 867,618 journeys. The proportion percentage of these classes is for first-class passengers 13·82; second-class, 66·84; season ticket holders, 29·34. The merchandise traffic consisted of 580,657 live stock, 133,597 bales of wool, 1,024,411 tons of minerals, and 360,932 tons of general goods. The average earnings per mile open were 147*l.*; the average expenditure was 75*l.*, and the net earnings were 71*l.* The average earnings per train mile were 92·95d.; the expenses 47·73d.; and the net earnings 45·22d. There was an increase of 107,081 in the number of first-class passengers, of 254,715 second-class, and 116,402 in the journeys made by season ticket holders, an increase in the receipts of 37,718*l.* from coaching traffic, and of 84,977*l.* from goods traffic, making a total

increase of 122,695*l.* The working expenses were increased by 79,579*l.*, and the net earnings by 43,116*l.* On the south and west lines there was an increase in interest on capital of 0·2 per cent.; on the North of 0·12 per cent.; and on all lines combined an interest of 0·4 per cent. This condition of affairs, showing as it does, that the greater portion of the public loans is invested in works returning a high rate of interest, cannot fail to increase confidence in the financial stability of the colony, and enhance the value of its securities.

A COMPARISON OF THE ORDINARY AND DIAMOND METHODS OF BORING.*

This memoir describes in the fullest detail the results obtained by two borings made for similar purposes—the determination of possible extensions of the coal measures, at Malkowitz, in Bohemia, and at Weyerfeld, near Rheinfelden, in Switzerland, both being undertaken by contractors, the first by Fauck and Co., of Carlsberg, in Austrian Silesia, with rigid rods and free-falling cutting tools, and the second by the Diamond Rock-boring Company, by their well-known rotary tubular cutter, armed with diamond points. The geological conditions were very similar in both cases. At Malkowitz the work was commenced with steam power on Sept. 1, 1875, and continued until June, 1877, when a depth of 1857 ft. (Austrian) had been reached, the average daily progress for 516 working days being 3 ft. 7 in., 22 lines, and the maximum in any one day 16 ft. The diameter at the beginning was 24 in., and at the bottom 7¼ in., the entire depth being protected by lining tubes of a total length of 3346 ft; and in addition to the boring proper, 594 ft. of ground, fallen in, required re-boring. The first 144 ft. passed through consisted of Cretaceous shales, clays, and sandstones; these were succeeded by about 800 ft. of red shale and sandstone in about equal proportions, belonging to the Permian series. At 950 ft. true coal measures were reached, consisting of grey shale and sandstone, but without workable coal seams, and at 799 ft. the transition to the Silurian rocks became apparent. A further depth of 58 ft. was bored through, when the evidence of the presence of older slaty rock being undoubted, the work was stopped at 1857 ft., the hole being lined with a 7¼ in. tube down to 1820 ft., and in a condition to be carried to a considerably greater depth if necessary. This line of tubes was recovered, but all those of larger diameter, together about 1500 ft. long, resisted all attempts to move them, and were abandoned. The greater part of the work was done with square iron rods ⅛ in. in the side, and a Fabian's free-falling cutting tool, working percussively; but at different times experiments were made with a hollow rod and continuous flushing current of water, after Fauvelle's manner, both with and without the free-falling cutter, and also with a hollow crown borer, working by rotation, to obtain cores. None of these innovations, however, proved successful.

The total number of 516 working days occupied in boring may be divided over the different operations as follows:—

	Days.		Per cent. of the whole time.
1.—Boring proper	219½	or	42
2.—Clearing out sludge	31½	„	6
3.—Lifting and lowering rods	81	„	16
4.—Enlarging and fixing tubes	61	„	12
5.—Repairing accidents	23	„	4
6.—Re-boring fallen ground, repairing and cleaning boring gear and engines	101	„	20

The total expenditure, after allowing for machinery and buildings at a depreciation of 40 and 25 per cent. on their first cost, was computed to be 5040*l.* 13*s.*, or at the rate of 2*l.* 14*s.* 2*d.* per foot, which sum is estimated to leave a profit to the contractor of 1200*l.* 5*s.* The original agreement provided for a new boring being made at the cost of the contractor, in the event of the first being abandoned, on account of any accident whatever, before a depth of 800 ft. had been reached. If such an accident had happened, the whole profit would have been absorbed; but, on the other hand, if any workable coal had been discovered a further sum of one-third of the rate agreed upon, amounting in all to about 1800*l.*, would have been paid to the contractors.

The second boring described, that at Weyerfeld, near Rheinfelden, in Switzerland, was undertaken by a local exploring company, with a view of proving a possible extension of the coal measures under the New Red Sandstone into Swiss territory, which it was considered might require a boring 2500 ft. deep. The Diamond boring machine was selected in preference to that of Lippmann and Co., of Paris, on account of its much greater speed, three months being estimated as the time required to bore to the full depth by the former, and three years by the latter. The work was undertaken by the Diamond Rock-boring Company, represented by Herr Schmidtmann, with a specially constructed machine, and operations were commenced on Aug. 14, 1875, with a 3⅛ in. borer, giving 2 in. cores, a depth of 728 ft. being reached on Sept. 1. The falls of ground then became so considerable, averaging about 130 ft. after each withdrawal of the rods, that it became necessary to line the hole. For this purpose the upper part was widened to 7 in. down to 265 ft., and thence to 468 ft. to 6 in., and lined. Below this a 5 in. line of tube was used, which, when difficulties arose with the boring tube, was made to cut its own way by attaching a boring crown with 12 diamonds, and working it by rotation in the same way as the ordinary rods. Between Sept. 22, when the boring was resumed, and Sept. 30 a further depth of 497 ft. was gone through, when it became necessary to continue the 5 in. lining, owing to the continued fall of ground. At this depth, 1225 ft. the bottom of the Permian sandstones was reached, and the borer passed into gneiss rock, which it was at first considered might be only loose blocks, but a further depth of 169 ft. bored in the first 15 days of October showed alternations of crystalline, schists, granite, and diorites, obviously of greater age than the carboniferous series, so that the work was necessarily stopped. The total depth of 1422 ft. was gone through in 63 days, and this included not only the operation of boring a 3½ in. hole of the entire depth, but widening at the top 640 ft. to 5, 6, and 7 in., the re-boring and removal of 2500 ft. of ground fallen in, and the fixing of 1171 ft. of lining tubes. Out of these only the 5 in. line, of 777 ft. in length, was recovered, those of 6 and 7 in. diameter being immovably fixed, and resisting all efforts made to withdraw them. Apart from accessory operations, the rate of progress for the time actually occupied in boring was 41 ft. 9 in., 10 lines per day of 24 hours; but taking these into account, the rate was 22 ft. 6 in., 10 lines. The greatest depth gone through in any one day was 76 ft. 8 in., on Sept. 26, when the boring was 938 ft. deep.

The cost of the boring is given in the fullest detail, the total amounting to 7920*l.*, or at the rate of 5*l.* 12*s.* per foot.

After describing both methods, the author analyses the results obtained, and shows that the great speed attained of the diamond borer is in great part to be attributed to the small diameter adopted, and that for equal volumes of rock removed the free-falling cutter is actually quicker in work. The fact that in rocks of greatly similar character the fall of ground in a depth of 1857 ft. was 595 ft., in the Bohemian boring, as compared with 2500 ft. in a depth of 1422 ft. at Rheinfelden, seems to show that in the latter the regular and systematic use of lining tubes was somewhat neglected. The conclusion arrived at is that the greatest advantage of the Diamond boring system will be found at medium depths not exceeding 1500 ft., but that for very deep borings a system combining the free-falling cutter, with a continuous discharge of the comminuted stuff by a current of water will be found the most advantageous. An appendix describes, with illustrations, a contrivance of this kind combined with a method of obtaining cores, proposed by W. Stoz, of Stuttgart, but not as yet carried out in practice, and another of a similar character by the contractor for the Malkowitz boring, which was described in the same journal in 1875.

* By L. Strippelmann: Zeitschrift des berg- und hüttenmännischen Vereines für Steiermark und Kärnten.

* From James Forrest's "Abstracts of Papers in Foreign Transactions and Periodicals," for the Proceedings of the Institution of Civil Engineers.

Society of Engineers.—At the meeting, on Monday, a paper will be read on Apparatus for Utilising the Waste Heat of Exhaust Steam, by Mr. James Atkinson.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Devon.

IN the MATTER of the COMPANIES ACTS, 1862 and 1867, and of the TEIGN VALLEY LEAD AND BARYTES MINING COMPANY (LIMITED).—Notice is hereby given, that a PETITION for the WINDING-UP of the above-named company by the Court was, on this 27th day of November, 1878, presented to the Vice-Warden of the Stannaries by Frederick Whinney, of Old Jewry, in the City of London, Public Accountant, and Thomas Andrew, of the City of Exeter, Public Accountant, claiming to be creditors of the said company, and that the said petition is directed to be heard before the Vice-Warden, at the Prince's Hall, in Truro, within the Stannaries of Cornwall, on Wednesday, the 11th day of December next at Twelve o'clock at noon.

Any contributory or creditor of the company may appear at the hearing and oppose the same, provided he has given at least two clear days' notice to the petitioners, or their solicitors, or their agent of his intention to do so, such notice to be forthwith forwarded to the Secretary of the Vice-Warden, P. P. Smith, Esq., Truro, Cornwall.

Every such contributory or creditor is entitled to a copy of the petition and an affidavit verifying the same from the petitioners, or their solicitors, or their agent, within 24 hours after requiring the same, on payment of the regulated charge per folio.

Affidavits intended to be used at the hearing, in opposition to the petition, must be filed at the Registrar's Office, Truro, on or before the 7th day of December next, and notice thereof must at the same time be given to the petitioners, or their solicitors, or their agent. ROBERT DOBELL, Jun., Solicitor, Truro, Cornwall (Agent for Halse, Trustram, and Co., 61, Cheapside, London, E.C., Solicitors for the Petitioners).

Dated this 27th day of November, 1878.

In the High Court of Justice—Chancery Division.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867,

AND IN THE

MATTER OF THE CAPE BRETON COMPANY (LIMITED).

NOTICE IS HEREBY GIVEN, that the property of the above-named company not having been sold at the recent Auction, the Official Liquidators are willing to RECEIVE OFFERS for the PURCHASE of the WHOLE PROPERTY, or any of the lots into which the same has been divided, as stated in the particulars already issued. It is requested that all offers be sent in to either of the undersigned on or before Friday, the 10th January next.

The Official Liquidators do not bind themselves to accept any offer, but they will submit all offers that may be received to the Judge.

Copies of the particulars and conditions of sale, as approved by the Judge prior to the property being put up for sale by auction, can be obtained from the undersigned, or from Messrs. Norton, Rose, Norton, and Brewer, 24, Coleman-street, E.C., Solicitors.

S. LOWELL PRICE, 44, Gresham-street, E.C., } Official
FREDK. WHINNEY, 8, Old Jewry, E.C., } Liquidators.

Dated this 15th day of November, 1878.

IN LIQUIDATION.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867,

AND OF THE

LLANIDLOES LEAD MINING COMPANY (LIMITED).

TO BE SOLD, BY TENDER, together or separately, the LEASES, also the PLANT and MACHINERY on the property of the above company. The mine is on the old Rhayader road, about two miles from the town of Llanidloes, in the county of Montgomery. A very large sum has been spent upon the development of the works on the property, which were abandoned at a time when the prospects warranted the expectation of an early success, solely on account of the capital having been exhausted.

Tenders for the whole in one lot as a going concern will have the preference.

INVENTORY OF MACHINERY.

ONE 40 in. pumping ENGINE, with TWO BOILERS.
ONE 12 in. horizontal ENGINE, with ONE BOILER.

One drawing machine; 1 crushing mill; 1 balance bob; 1 6 ft. shaft pulley; 80 fms. 8 in. wood rods; 1 8 in. plunger lift, 30 fms. long; 1 9½ in. plunger lift, 24 fms. long; 2 8 in. drawing lifts, 12 fms. long each; 1 7 in. drawing lift, 12 fms. long; 3 tram wagons; 20 small pulleys; 100 fms. iron bridge rails; 8 hand jigging machines; 2 machine kibbles; 1 40 in. smith's bellows, and sundry smith's tools; 1 anvil; 1 smith's vice; 40 fms. bucket rods, with buckets and slacks; scales and weights; several strapping plates; 120 fms. 1 in. diameter iron wire rope; sundry office furniture.

The whole of the machinery is in first-rate condition, and would afford a good opportunity to an enterprising individual or a company of employing capital with more than ordinary prospects of success.

The property is open to inspection, and the leases and conditions of sale can be seen at the offices of the solicitor.

All tenders must be sent in, addressed to the Liquidators, under cover, to Mr. A. Kerly, 14, Great Winchester-street, London, on or before the 10th day of December next.

JOHN OWEN, } Liquidators.
WM. BOWMAN, }
ALEX. KERLY, Solicitor to the Liquidator.

Dated this 13th day of November, 1878.

TO MINING ENGINEERS, SPECULATORS, &c.

IN LIQUIDATION.

A PROMISING LEAD PROPERTY, in the NORTH OF SPAIN, is OPEN FOR SALE, at a very low price, to an immediate purchaser. A large sum has been expended in developing it. A gallery has been driven over 300 yards on a lode 17 feet wide, which in one place for 20 yards showed a large deposit of lead ore: 90 tons were extracted in three days from a cross-cut of six yards. The gallery was driven past this to within 120 yards of a very superior deposit of rich ore, but the funds of the company were expended before reaching it. A small outlay for adding to the existing machinery will, it is believed, make it a paying concern.

Apply to "W. H. M.," 10, Atlantic-road, Weston super-Mare.

TO BE SOLD, BY PRIVATE TENDER, pursuant to an Order of His Lordship Vice Chancellor Malins, made in the Matter of the Companies Acts, 1862 and 1867, and of the Vronheulog Slate Company (Limited), and subject to the approval of the Judge, ALL and SINGULAR the MESSUAGES, FARMS, LANDS, and HEREDITAMENTS, called

VRONHEULOG CAEMAUR AND TALEITHINISSA,

Situate in the county of Carnarvon, and ALL and SINGULAR the QUARRIES MINES, ROCKS, VEINS, BEDS, STRATA, and SEAMS of every kind what ever lying under the same, and a portion of another FARM, called TANRALLT, next adjoining thereto, held for the residue of a term of 60 years, from Christmas, 1863, at the yearly rents amounting to £38 13*s.*, and royalties of 2*s.* 6*d.* per ton for best slates; 1*s.* 6*d.* per ton for seconds; 6*d.* per ton for thirds, moss slates, and rough block; 1*s.* per ton for manufactured slabs; and 1-14th part to be paid in money for all minerals, with a minimum for royalties of £55, the lessors paying tithe and land tax.

Together with all PLANT, MACHINERY, tools, utensils, materials, and other effects in or about the said premises belonging to the said company.

Tenders are to be sent to Mr. Henry Spain, the Official Liquidator of the said company, at No. 1, Gresham Buildings, Basinghall-street, London, E.C., not later than the 20th day of December, 1878.

Particulars, with plan and conditions of sale, and forms of tender, may be had, gratis, of the Official Liquidator; of Messrs. Spain, Andrewes, and Spain, of 1, Gresham Buildings, London, E.C., accountants; of Messrs. Smart, Snell, and Co., of 53, Cannon-street, London, E.C., accountants; of Messrs. Paine, Layton, and Cooper, of 47, Gresham House, Old Broad-street, London, E.C., solicitors, at whose office the lease may be seen; of Messrs. Lowless and Co., of 26, Martin's lane, Cannon-street, London, E.C., solicitors; and of Mr. C. J. Cole, of 172, Fenchurch-street, London, E.C., solicitor.

EDWARD SHEARME, Chief Clerk.

FOR SALE.

TWO THOUSAND FIVE HUNDRED AND TWENTY ACRES PHOSPHATE LANDS, in the Township of TEMPLETON, County of OTTAWA, CANADA.

THE UNDERSIGNED OFFERS FOR SALE TWO THOUSAND TWO HUNDRED AND EIGHTY ACRES of PHOSPHATE LANDS; also MINING RIGHTS on TWO HUNDRED AND FORTY ACRES of LAND, all in the Township of Templeton, at a distance of eight to ten miles from River Ottawa.

A portion of the property has been worked and partially explored, and a great many phosphate openings made.

For further information apply to—

November 26, 1878. F. B. KNOWLES, Wellington, Salop.

WEST OF ENGLAND COMPRESSED PEAT COMPANY (LIMITED).

PEAT CHARCOAL FOR SALE, free from SULPHUR, suitable for—

AGRICULTURAL, FLORAL, SANITARY, FOUNDRY, SMELTING, MANUFACTURING, and GENERAL PURPOSES.

For terms, apply to the Manager, 87, Queen-street, Exeter.

HORIZONTAL ENGINE.

A STRONG, WELL-FINISHED ENGINE 12¼ inch cylinder, 2 feet stroke, with fly wheel, wrought crank shaft, 5 inch diameter, governor, and massive box bed.

Price ... ... £76.

ALEXANDER SMITH,
ENGINEER, DUDLEY.

18 H.P. PORTABLE STEAM ENGINE, with link motion reversing gear, ready for delivery; also gear to wind and pump.

A 9-h.p. VERTICAL STEAM ENGINE, with link motion, reversing gear (winding drum if required).

A 6-ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER, with carriage and travelling wheels.

Apply to—

BARROWS AND STEWART, ENGINEERS, BANBURY.

COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.

DISTRICT UNDER THE CHARGE OF J. P. BAKER, Esq., H.M. INSPECTOR OF MINES.

PERSONS desirous of being EXAMINED in this District for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, should at once COMMUNICATE with the Secretary to the Board of the above-mentioned District, at the following address:—Heath Town, Wolverhampton.

By order of the Board,
W. BLAKEMORE, Secretary.

N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

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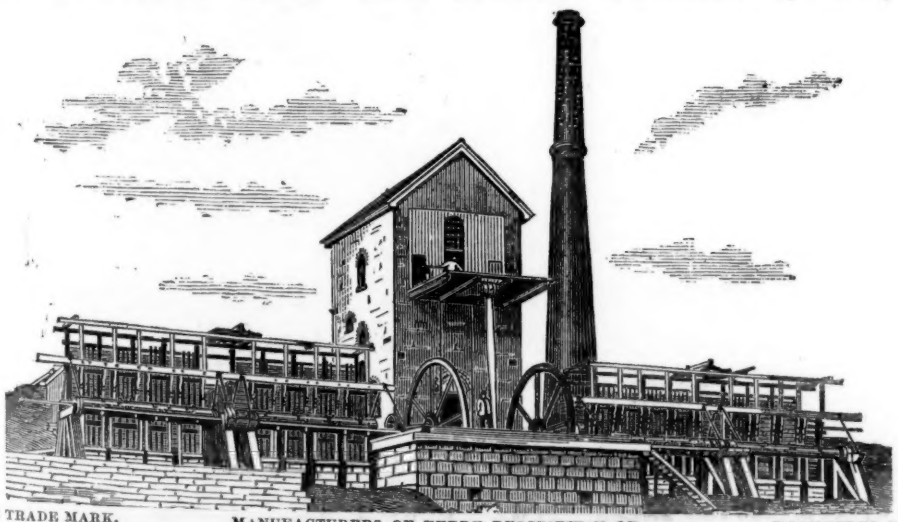

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Shares	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
4000	Brookwood, c, Buckfastleigh	1 16 0	1	⅝ 1	3 16 0	0 2 0	Nov. 1875
2000	Bryn Alyn,* l, Denbigh	10 0 0	—		0 7 0	0 7 0	Jan. 1877
10000	Caron, l, Cardigan*	2 0 0	2⅛	2 2¼	0 4 0	0 2 6	Oct. 1878
1000	Carn Brea, c, t, Illogan†§	56 7 6	37½	35 37	308 0 0	1 0 0	Feb. 1874
400	Cashwell l, Cumberland*	2 10 0	—		1 9 6	0 2 0	Aug. 1876
2450	Cook's Kitchen, t, Illogan†§	25 4 9	1½	1½ 2	11 17 0	0 7 6	Jan. 1873
540	Devon Gt. Consols, c, Tavistock†*	1 0 0	1⅛	1 1⅛	116 15 0	0 5 0	July 1877
4296	Dolcoath, c, t, Camborne	10 14 10	31	30 32	113 1 3	0 5 0	Nov. 1878
5000	East Black Craig,* l., Scotland	5 0 0	—		0 10 0	0 10 0	Feb. 1877
300	East Darren, l, Cardiganshire	32 0 0	—		235 10 0	1 0 0	Aug. 1876
6400	East Pool, t, c, Illogan	0 9 9	9⅛	9¼ 9⅛	15 13 3	0 1 6	Nov. 1878
40000	Glasgow Cara., c* [30,000 £1 p., 10,000 15s. p.]		1	¾ 1	0 13 10	0 0 6	Aug 1878
7500	Gorsedd and Merllyn Cons., l, Flint	2 10 0	4	3½ 4	0 5 0	0 5 0	Aug. 1877
15000	Great Laxey, l, Isle of Man*	4 0 0	17	17 18	24 5 0	0 6 0	Oct. 1878
615	Gt. Retallack, l, bl, Perranzabuloe	5 18 6	—		0 1 6	0 1 6	May 1876
6400	Green Hurth, l, Durham*	0 6 0	½	¾ ½	1 18 0	0 3 0	Mar. 1878
10000	Grogwinion, l, Cardigan*	2 0 0	2⅜	2 2½	0 14 10	0 0 10	Aug. 1878
9830	Gunnislake (Clitters'), t, c	5 5 0	1¾	1¼ 1¾	0 13 9	0 1 0	Oct. 1876
60000	Holmbush, a, c, s-l, Callington*	1 0 0	—		0 4 6	0 0 6	Sept. 1877
2800	Isle of Man, l, Isle of Man*†	25 0 0	—		82 5 0	0 10 0	Feb. 1876
20000	Leadhills,* l, Lanarkshire	6 0 0	2¼	2 2¼	0 15 0	0 3 0	Mar. 1878
400	Lisburne, l, Cardiganshire	18 15 0	35	25 35	587 10 0	1 0 0	Aug. 1878
14000	Llanidloes,* l, Montgomery	3 0 0	—		0 9 0	0 4 6	Nov. 1876
9000	Marke Valley, c, Linkinhorne	5 3 6	¾	¾ 1	7 15 0	0 2 0	Jan. 1876
10000	Mellanear Copper, Hayle*	2 0 0	4	4 4½	0 5 0	0 3 0	July 1878
9000	Minera Mining Co., l, Wrexham*	5 0 0	10	8 10	67 17 8	0 2 0	Nov. 1878
20000	Mining Co. of Ireland, cl, c, l*	7 0 0	—		23 17 6	0 2 6	Jan. 1878
1024	North Busy, c, Chacewater	1 14 9	—		1 0 0	0 5 0	Oct. 1878
10289	North Hendre, l, Wales	2 10 0	—		2 7 6	0 5 0	June 1878
30000	Panty Mwyn,* l, Mold (8794 iss.)	2 0 0	4½	4 4½	0 3 0	0 2 0	Aug 1878
6000	Pednandrea Con., t, Redruth	0 8 6	—		0 9 0	0 9 0	June 1877
5000	Penhalls, t, St. Agnes	3 2 6	1	¾ 1	3 13 6	0 2 0	July 1875
6000	Pennant, l, bar, North Wales*	5 0 0	4½	4 4½	0 10 0	0 5 0	Mar. 1878
45793	Penstruthal,* t, c, Gwennap	2 0 0	⅛	⅛ ¼	0 2 8	0 0 8	Nov. 1875
18000	Prince Patrick,* s-l, Holywell	1 0 0	1⅛	1 1⅛	0 14 0	0 1 3	Jan. 1876
10000	Red Rock,* l, Cardigan	2 0 0	2¼	1¾ 2¼	0 4 0	0 2 0	Jan. 1878
12000	Roman Gravels, l, Salop*	7 10 0	6½	6¼ 6¾	7 15 0	0 5 0	Mar. 1878
512	South Caradon, c, St. Cleer	1 5 0	60	55 60	744 10 0	1 0 0	Nov. 1878
6123	South Condurrow, t, c, Camborne‡	6 5 6	11	10½ 11	4 1 0	0 8 0	Aug. 1878
12000	St. Harmon,* l, Montgom.	3 0 0	3	2 3	0 12 0	0 3 0	July 1878
10000	So. Pr. Patrick,* s-l. (8000 sh. issued)	1 0 0	—		0 7 0	0 1 0	Oct. 1875
4500	South Wh. Frances, c, Illogan†	7 12 4	7¼	6¼ 7	37 5 0	0 5 0	Sept. 1878
12000	Tankerville, l, Salop*	6 0 0	3⅛	3 3¼	4 17 0	0 5 0	Dec. 1876
6000	Tincroft, c, t, Pool, Illogan†§	11 10 0	10	9 11	50 8 6	0 5 0	May 1877
15000	Van, l, Llanidloes*	4 5 0	17½	17 18	23 5 6	0 5 0	Oct. 1878
3000	W. Chiverton, l, Perranzabuloe†	12 10 0	2¼	2 2⅛	55 10 0	0 10 0	Feb. 1878
1785	West Poldice, St. Day§	11 0 0	—		1 19 0	0 4 0	July 1876
512	West Tolgus, c, Redruth	95 10 0	41	40 42½	32 0 0	1 0 0	Nov. 1878
2048	West Wheal Frances, t, Illogan§	28 16 3	2⅛	2¼ 2⅛	3 12 6	0 5 0	Oct. 1872
600	West Wheal Seton, c, Camborne†	47 0 0	7	6 7	446 0 0	0 15 0	Apr. 1878
12000	West WyeValley,* l, Montgom.	3 0 0	2⅛	2 2¼	0 12 0	0 3 0	Nov. 1877
1024	Wh. Eliza Consols t, St. Austell	18 0 0	—		19 10 0	1 10 0	Aug. 1878
2048	Wheal Jane, t, Kea	5 13 10	⅝	⅜ ⅝	8 5 0	0 5 0	July 1875
4295	Wheal Kitty, t, St. Agnes	5 4 6	1½	1 1½	11 19 6	0 2 6	Dec. 1874
25000	Wh. Newton, a, c, s, t, Calstock*	1 0 0	—		0 8 6	0 4 0	Sept. 1877
80	Wheal Owles, t, St. Just§	173 15 0	20	15 20	522 10 0	4 0 0	Aug. 1872
3000	Wheal Peevor, t, Redruth	7 11 0	6½	6⅜ 6⅜	0 15 0	0 5 0	Nov. 1878
6000	Wheal Prussia, t, Redruth	0 5 0	5¼	5¼ 5½	0 4 0	0 1 0	July 1877
10000	Wye Valley, l, Montgomery*	3 0 0	2⅜	1¼ 2¼	0 10 6	0 4 6	Oct. 1876

FOREIGN DIVIDEND MINES.

Shares	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
35500	Alamillos, l, Spain*†	2 0 0	1¼	¾ 1¼	1 19 9	0 0 6	Oct. 1878
80000	Almada and Tirito Consol., s*†	1 0 0	⅛	⅛ ¼	0 6 3	0 1 0	May 1876
20000	Australian, c, South Australia†	7 7 6	1¾	1 1½	1 1 6	0 2 0	July 1878
10000	Battle Mountain,* c, (6240 part pd.)	5 0 0	—		0 10 0	0 10 0	Nov. 1872
15000	Birdseye Creek, g, California*	4 0 0	¾	½ ¾	0 14 0	0 2 6	June 1874
20000	Cape Copper Mining,*† So. Africa	7 0 0	29½	29 30	32 5 0	0 17 6	Sept. 1878
34433	Cedar Creek, g, California*	5 0 0	⅜	⅛ ⅜	0 5 0	0 2 6	June 1873
85000	Cesena Sul. Co., Romanga, Italy*	10 0 0	—		0 18 0	0 2 0	Aug. 1878
15000	Chicago, s, Utah*	10 0 0	1¼	¾ 1¼	2 8 0	0 4 0	Nov. 1876
65000	Colorado United, s-l, Colorado*†	5 0 0	2¼	2 2½	0 13 6	0 4 0	Jan. 1875
10000	Copiapo, c, Chili* (£20 shares)	16 15 0	—		7 11 5	0 3 0	May 1877
00000	Don Pedro North del Rey*†	0 16 0	⅝	⅜ ½	2 5 9	0 2 0	Mar. 1872
23500	Eberhardt & Aurora, s, Nevada*†	10 0 0	3¼	3¼ 3¾	1 8 0	0 3 0	Dec. 1877
70000	English & Australian, c† S. Aust.	2 10 0	1¼	1 1¼	2 15 9	0 1 0	Mar. 1877
30000	Flagstaff, s, Utah*	10 0 0	⅛	¾ ½	4 2 0	0 5 0	July 1873
25000	Fortuna, l, Spain*†	2 0 0	4	3½ 4	7 3 2	0 3 4	Oct. 1878
55000	Frontino & Bolivia, g, New Gran.*†	2 0 0	2¼	1½ 2	0 2 6	0 1 6	Sept. 1878
30000	Gold Run, hyd.	1 0 0	—		0 2 4	0 0 4	Oct. 1872
68000	Kapunda Mining Co. Australia†.	1 3 0	—		0 2 4	0 0 6	June 1873
20000	Last Chance, s,* Utah	5 0 0	¾	½ ¾	0 14 0	0 2 0	July 1873
15000	Linares, l, Spain*†	3 0 0	4½	3¾ 4¼	17 10 4	0 2 6	Oct. 1878
65000	London and California, g*†	2 0 0	⅛	¼ ½	0 1 0	0 1 0	July 1875
7837	Lusitanian, Portugal*† (£5 sh.)	3 10 0	—		1 11 6	0 1 6	Mar. 1873
5000	Mamm. Copperopolis of Utah, c, s	10 0 0	—		0 5 0	0 5 0	Dec. 1872
5000	Mountain Chief, s, Utah*	10 0 0	—		0 4 0	0 4 0	Jan. 1873
10000	Pontgibaud, s-l, France†	20 0 0	28	26 28	25 19 11	0 11 11	June 1878
100000	Port Phillip, g, Clunes*†	1 0 0	⅝	½ ⅝	1 11 0	0 1 0	Sept. 1878
54000	Richmond Consols, s, Nevada*†	5 0 0	10¼	11 11¼	6 11 6	0 10 0	Nov. 1878
40000	Santa Barbara,* g, Brazil	0 10 0	2¼	1¾ 2¼	0 5 9	0 1 0	Nov. 1878
120000	Scottish Australian Mining Co.*†	1 0 0	1⅞	1⅝ 1⅞	15 per cent.		Nov. 1878
80000	Scottish Austral. Mining Co., New	0 10 0	⅞	¾ ⅞	15 per cent.		Nov. 1878
122800	Sierra Buttes, g, California*†	2 0 0	1⅞	1½ 1¾	1 19 0	0 1 0	Oct. 1878
140625	S. B. Plumas Eureka	2 0 0	2¼	2⅛ 2⅜	2 1 0	0 3 0	Oct. 1878
60000	South Aurora, s, Nevada*	5 0 0	⅜	½ ¼	0 14 2	0 2 0	Nov. 1873
£253000	St. John del Rey*† (£5 stock & multiples dealt in)			285 295	⅜ year. 15 p. ct. for		Dec. 1878
20000	Tolima, g, s* So. America	5 0 0	—		0 11 6	0 6 6	May 1874
25000	Victoria (London)*, g, Australia	1 0 0	¾	⅝ ¾	0 12 6	0 0 7½	Jan. 1878
15800	Western Andes, s,* New Granada	5 0 0	—		0 12 0	0 12 0	July 1876
21000	W. Prussian (5500 pref. sh. 10l. pd)	10 0 0	10½	10 10½	1 6 0	0 4 0	Oct. 1878

NON-DIVIDEND FOREIGN MINES.

Shares	Mines.	Paid.	Last Pr.	Clos. Pr.	Last Call.
12000	Argentine, g, Argentine Republic	5 0 0	⅜	¼ ¾	Fully pd
3000	Bellavista, s, Peru* (£10 shares)	10 0 0	—		Fully pd.
30000	Blue Tent, hyd., California	5 0 0	3	3 3	Fully pd.
10000	Buena Ventura,* l, Llano de las Infantas, Spain (£2 sh.)	0 5 0	—		Oct. 1878
49935	Chontales, g, s, Nicaragua*†	2 0 0	⅝	⅛ ⅝	Fully pd.
16000	Condes of Chili, s-l	5 0 0	—		Fully pd.
90000	English Australian, g, Victoria*	1 0 0	⅞	⅝ ⅞	Fully pd.
35000	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	—		Dec. 1871
100000	Exchequer, g, s, California*†	1 0 0	⅜	⅛ ⅜	Fully pd.
40000	Holcombe Valley, g,* California	1 0 0	—		Fully pd
8000	Hornachos,* s-l, Spain	10 0 0	10	12 13	Fully pd.
12000	Hultafall,* l, bl, Orebro, Sweden	5 0 0	3⅛	3 3⅛	Fully pd
12000	Hunter Consolidated, s-l, Utah	10 0 0	—		Fully pd.
20000	Imperial Brazilian Collieries, Brazil*	5 0 0	—		Fully pd.
7500	Isabelle, g, s*, California (£20 shares)	5 0 0	—		Oct. 1878
100000	I. X. L., g, s, California*	1 0 0	¼	⅛ ¼	Fully pd
58000	Javali, g, Nicaragua*	2 0 0	8s.	6s. 6s.	Fully pd
3500	La Manche, l, Newfoundland	10 0 0	—		Fully pd.
12000	Lanestosa,* l, z, Viscaya, Spain (£2 shares)	1 15 0	—		Mar. 1876
75000	Malabar, g, Colombia* (67165 issued)	1 0 0	—		Fully pd.
40000	Malpaso, g, Colombia* (7400 pref. shares, fully paid)	1 0 0	—		Fully pd.
12000	Menzenberg, c, Honnef, Germany*	5 5 0	—		Fully pd
4588	New Bensberg, i, l, Germany	5 0 0	—		Nov. 1876
66000	New Quebrada, c, Venezuela*	5 0 0	2	1¾ 2	Fully pd.
20000	New Zealand Kapanga, g, Coromandel*	5 0 0	⅞	⅝ ⅞	Fully pd
3000	Oregon,* g, Oregon, U.S. (preference shares)	4 0 0	—		Fully pd
60000	Panulcillo, c, Chili*† (£80000 debentures)	4 0 0	1¼	¾ 1¼	Fully pd.
30000	Pestarena United, g, Italy*†	3 0 0	¼	⅛ ¼	Fully pd.
25000	Pitanqui,* g, Brazil (incl. 6000 sh. £1 fully paid)	0 5 0	⅜	¼ ⅜	Aug. 1878
25000	Placerville,* g q, California	2 0 0	2⅜	2⅛ 2⅜	Fully pd.
50000	Providencia and New Rosario, s, Mexico*	1 0 0	—		Fully pd.
40000	Ravenscliff, g, New Zealand; c, South Australia	0 5 0	¼	¼	July 1878
50000	Rica, g, Colombia* (40000 issued)	1 0 0	⅛		Fully pd.
£2,181,000	Rio Tinto,* c, Huelva, Spain	Stock	61	59 61	Fully pd.
00000	Rossa Grande, g, Brazil*† (£1 shares)	1 0 0	⅛	⅛	Fully pd.
30040	Russia Copper, Orenburg and Ufa*†	10 0 0	—		Fully pd
10000	Silver Plume, s, Colorado*	1 0 0	—		Fully pd.
30000	Tecoma, s, Utah*	10 0 0	⅝	⅜ ⅝	Fully pd.
43174	United Mexican, s, Mexico*†‡	29 0 3	3¾	2¼ 3¼	May 1878
14000	Utah, g, s-l, Utah*	5 0 0	—		Fully pd.
50000	Virneberg, c Rheinbreitbach, Germany*	2 0 0	—		Fully pd.
16000	Yorke Peninsula, c, South Australia	1 0 0	⅜	⅛ ¼	Fully pd.
54800	Yorke Peninsula, c, South Australia Preference	1 0 0	⅜	⅜ ⅝	Fully pd.

§ Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

	Closing Prices	
Argentine, 1868 6 per cent.	75	76
Bolivia, 6 per cent.	26	27
Brazilian, 1865, 5 per cent.	92	94
Chilian, 1866, 7 per cent.	89	92
City of Providence, 5 p.c. coupon bnds	101	103
Egyptian, Gov. preference	71⅛	72¼
Do., unified debt, scrip	52	52½
Do., 7 per cent., V.M.L.	81	83
Do., per cent. guar.	82	84
Do., K. Daira Sanieh	61⅛	62⅛

	Closing Prices	
Foreign and Col. Gov. Trust, 6 p. ct.	66	71
Do., 5 per cent., 2d issue	56	61
Do., 6 per cent., 3d issue	55	60
Do., 1872, 4th issue	55	60
Do., 1873, 5th issue	50	55
Peruvian, 1870, 6 per cent.	12¾	13¼
Do., 1872, 5 per cent	10¼	11¼
Russian, 5½ per cent. L. Mort.	—	
Spanish, Quicksilver Mort., 5 p. ct.	98	100
United States Mort. 6 per cent.	100	102

NON-DIVIDEND MINES.

Shares.	Mines	Paid.	Last wk.	Clos. pr
40000	Aberdaunant, l, Llanidloes*	1 0 0	¾	½ ¾
2560	Aberllyn,* l, bl, Carnarvon	10 0 0	12	10 12
10000	Aberystwith,* s-l, Cardigan	5 0 0	—	
80	Albion, t, Cornwall	100 0 0	—	
12000	Assheton, l, Carnarvonshire*	5 0 0	¾	½ ¾
50000	Ballycummisk,* c, Schull	2 0 0	—	
12000	Bedford Unit.,* c, Tavist. (1l. liab.)	0 1 0	¼	⅛ ¼
30000	Bettws-y-Coed,* l (20,000 issued)	1 0 0	1¼	1 1⅛
8000	Blaen Caelan,* l, Cardigan	3 0 0	4	3½ 4
3937	Bine Hills, t, c, St. Agnes	3 16 6	¾	½ ¾
30000	Bodidris,* l, bl, Denbighshire	1 0 0	1⅛	1⅛ 1⅝
1000	Bollihope Vale,* s-l, Durham	5 0 0	—	
200	Botallack, t, c, St. Just‡	123 15 0	—	
2000	Bowden Hill,* mn	1 0 0	—	
6000	Bradwell Moss Rake	1 0 0	1	¾ 1
10000	British,* s l, Wrexham	2 0 0	3	2 3
256	Browngelly, c, St. Neot	0 10 0	2⅛	2¼ 2½
50000	Cambrian,* s-l, c, Cardiganshire	2 0 0	3¼	3 3¼
20000	Central Foxdale, l, I. of Man* (2l. sh.)	1 5 0	—	
10000	Central Van,* l, bl, Llanidloes	5 0 0	—	
5120	Clementina, l, Llanrwst*	1 0 0	1⅛	1 1¼
7500	Combellack,* t, Wendron	2 0 0	—	
6000	Combmartin, s-l, North Devon	0 7 0	⅛	⅛
24000	Court Grange, s-l, Cardiganshire	1 0 0	1	¾ 1
15000	Cwm Brwyno,* l, Cardigan	2 0 0	—	
15000	Cwm Dwyfor,* c, s-l, Wales	1 0 0	—	
5000	Ditto, 12½ per cent. pref.	1 0 0	—	
3000	Cwmystwith (New), Cardiganshire	5 0 0	—	
1080	D'Eresby Cons., l, bl, Carnarvon	10 0 0	10	8 10
1024	D'Eresby Mountain, l, bl, Llanrwst	20 0 0	40	30 40
2[illegible]00	Denbighshire Consolidated, l*	3 0 0	2	1 2
12000	Derwent,* l, Durham	4 0 0	1½	1¼ 1½
10000	Dubby Syke, l, Durham*	0 15 0	—	
6144	East Caradon, c, St. Cleer‡	2 19 0	⅜	⅛ ⅜
4000	East Chiverton, l, Perranzabuloe	7 7 6	1¼	1 1¼
3000	East Craven Moor*, l, Pateley Bdge	10 0 0	10	9 10
6000	East Goginan, l, Cardigan	2 0 0	—	
30000	East Roman Gravels,* l, Salop	1 0 0	6s. 8d.	6s. 8d.
18000	East Van, l, Llanidloes*	5 0 0	2¼	1½ 2
1722	East Wh. Lovell, t, Helston	9 16 0	⅛	¼ ⅛
20000	Elgar,* s-l, Cardiganshire	1 0 0	—	
11600	Frongoch, l, Cardigan	2 0 0	2⅜	2½ 2¾
10000	Frosterley,* l, Durham	1 0 0	—	
3950	Gawton, c, Tavistock	4 5 6	⅜	⅛ ⅜
12000	Glan Clwyd,* l, Gwyddelwern	1 0 0	—	
14000	Glenroy,* s-l, Isle of Man	4 5 0	¾	½ ¾
10000	Glyn,* l, Llanidloes	2 0 0	¾	½ ¾
12000	Goginan, & Level Newydd, Card., l	2 10 0	—	
20000	Goreu,* s-l, Carmarthen	1 0 0	1	¾ 1
20000	Gt. E. Foxdale, l, I. of Man (1l. sh)	0 18 0	—	
12000	Great Holway,* l, Flintshire	5 0 0	5	4½ 5
9500	Great Pant-y-Pydew, l, Holywell	2 0 0	—	
6000	Gt. Wheal Eleanor, t, North Bovey.	1 17 6	2	1¾ 2
6000	Great Wheal Rodd,* s-l, Cornwall	0 10 0	1	¾ 1
10000	Harehope Gill,* l, Durham (£1 sh.)	0 5 0	—	
600	Hartington Moor,* carb. l, Derby	1 0 0	2	1½ 2
6400	Harwood,* l, Durham	0 15 0	—	
1024	Herodsfoot, l, near Liskeard†	8 10 0	3	2 3
13000	Hingston Down, c, Calstock*†	0 6 0	¼	⅛ ¼
5000	Hush Eisteddfod Minera,* l	2 0 0	—	
2500	Killaloe, sl, Tipperary‡	1 0 0	—	
8000	Killifreth, t, Chacewater	2 7 6	1	¾ 1
25000	Kingston Con., s-l, Stoke Climsland.	1 0 0	—	
	Ditto, preference	1 0 0	1⅛	1 1⅛
12000	Ladywell,* l, Salop	2 10 0	1	¾ 1
12000	Ditto, 10 per cent. pref., 1l. each	0 10 0	¾	½ ¾
5000	Lead Era,* l, Mold	2 10 0	—	
2500	Levant, c, t, St. Just	10 4 6	—	
1400	Lisburne Syndic.,* l, Cardigan.	5 0 0	3	7 9
6000	Livingstone Consols, t, St. Agnes	0 10 0	1	¾ 1
10000	Lomax, s-l, North Wales	1 0 0	1¼	1 1¼
5120	Lovell, t, Wendron	0 16 0	2	1½ 2
25000	Llanrhaiadr, l, Montgomery*	2 0 0	—	
30000	Llanrwst,* l, Carnarvon	2 0 0	3	1¾ 2¼
24	Mawston,* l, South Wales	50 0 0	60	55 60
6000	Medlyn Moor, t, Wendron	2 9 10	—	
11000	Melyndwr, l, Cardigan*	8 0 0	1¼	¾ 1¼
7000	Mid Devon Copper*	0 6 8	1¼	1 1¼
21000	Ditto	0 2 6	1	¾ 1
8000	Mineral Corp. of Great Britain*	10 0 0	11	10 11
11000	Monydd Gorddu, l, Cardigan* (Red.)	5 0 0	3	2½ 3
12000	Morfa Du, z, g, s, Anglesea	0 15 0	⅞	¾ ⅞
25000	Nant-y-Ronen, s-l, Cardigan*	1 0 0	—	
15000	Nascent Copper*	1 0 0	—	
4768	New Bronfloyd,* ., Cardigan (5l. sh.)	3 16 0	4⅛	4⅜ 4½
8000	New Dolcoath, t, c, Camborne*	3 0 0	1⅛	1⅛ 1¼
20000	New East Foxdale, s-l, Isle of Man.	0 15 0	—	
1492	New Hendra, t, Breage	3 9 0	—	
3200	New South Merllyn, l, Flint*	2 10 0	⅜	¼ ⅜
3500	New Tincroft,* t, Lelant	0 0	3	2½ 3
5000	New Wheal Emma, c, Buckfastleigh	2 0 0	—	
4000	North Cornwall,* l, Cornwall	5 0 0	5⅜	5⅛ 5⅜
30000	North Laxey,* Isle of Man	1 0 0	4s.	2s. 4s.
2000	North Levant, t, c, St. Just‡	12 16 0	1	¾ 1
50000	North Molton, c, mn, i, Devon	1 0 0	1	1
20000	North Prince Patrick,* l, Holywell.	1 0 0	—	
5936	North Treskerby, c, St. Agnes	8 17 10	—	
6400	Oola Hills,* s-l, Limerick	5 0 0	—	
12000	Pandora,* l, Carnarvon	2 0 0	1	¾ 1
6000	Park Valley,* s-l, North Devon	0 4 0	1	¾ 1
6000	Parracombe, s l, Devon	0 5 0	⅝	4s. 6s.
16923	Parys Mountain,* c, Anglesea	3 0 0	¼	¼ ⅜
12000	Phœnix, & W. Phœnix, t, c, Link.§	5 10 3	2	1½ 2
4000	Pateley Bridge, l, Yorkshire	5 0 0	4	3½ 4
7000	Picton,* s-l, Holywell, fully paid	1 0 0	5	5
12000	Plynlimmon, l, Llanidloes*	2 0 0	6s.	4s. 6s.
10000	Port Nigel,* s-l, Carnarvonshire	2 0 0	½	¼ ½
2000	Prideaux Wood, t, Llanivery	5 0 0	—	
5182	Prince of Wales, c, Calstock‡	2 8 0	1s.	6d. 1s.
6000	Relistian Consols, c, Gwinear	0 10 0	⅝	½ ⅝
15000	Rookhope, l, Durham*	1 10 0	⅝	½ ⅝
4200	Snowbrook, s-l, Montgomery	5 0 0	—	
000	So. Cwmystwith, l, Cardiganshire	2 0 0	3	1½ 2½
8000	South Darren, l, Cardigan*	1 10 0	2	1¾ 2
30000	South de Eresby Mountain,	1 0 0	—	
6000	So. Devon United Copper*	1 0 0	1	¾ 1
512	South Dolcoath, c, t, Redruth	12 5 0	—	
5000	So. Molton Cons., s-l, No. Devon	0 3 6	—	
18000	South Roman Gravels, l*	1 10 0	¼	⅛ ¼
6000	South Roskear, t, c, Camborne	7 5 0	—	
6000	South Tolcarne, t, c, Camborne	2 5 6	¾	½ ¾
937	South Wheal Crofty, c, Illogan	41 0 10	5	4 5
12000	Steddfa,* l, Cardigan	1 0 0	1¼	1 1¼
6000	St. Lawrence, Amal., l, Flintshire*	2 0 0	—	
10000	St. Patrick, l, Halkin, Holywell*	1 0 0	1¼	1 1¼
6000	Success, &c., l, Derb. (12,000l. called)	1 0 0	—	
16000	Sunnyside,* l, Durham	2 0 0	—	
30000	Talybont,* s-l, Cardiganshire	1 0 0	—	
6400	Teesdale,* l, Durham	1 0 0	⅛	⅜ ½
14000	Teign Valley, l, bar., Bridford	1 0 0	—	
10000	Temple, l, Cardigan*	1 0 0	—	
10000	Tolgus Consols,* c, Redruth	5 0 0	3½	3 3½
8000	Treleigh Wood, t, Redruth	6 1 0	—	
12000	Trethellan, s-l, Crantock*	2 0 0	—	
640	Truro*, l, Nerquis, Flintshire	10 0 0	—	
10000	Tyn-y-Fron,* l, Cardigan	1 0 0	1½	1 1½
1000	Vaughan*, l., Cardiganshire	10 0 0	—	
18000	Victor,* l, Flintshire (£1 share)	0 5 0	—	
12000	West Assheton, l, Carnarvon	1 0 0	⅞	⅝ ⅞
6000	West Basset, c, Illogan†‡	6 13 4	2½	3½ 4
5500	West Combmartin, s-l, North Devon	1 0 0	—	
7000	Ditto	0 2 6	—	
3000	W. Craven Moor, l, Pateley Bridge*	10 0 0	10	9 10
5000	West Godolphin, t, c, Breage	2 18 0	1¼	1 1¼
12000	West Goginan,* Cardiganshire	2 0 0	⅜	⅛ ⅜
10000	West Llangynog, s-l, Montgomery	2 0 0	—	
3000	West Mary Ann, l, Menheniot	0 12 6	¾	½ ¾
50000	West Miiwr, s-l, Flint	1 0 0	—	
5000	West of England Granite Company.	2 0 0	—	
20000	West Pateley Bridge,* l, Yorkshire.	1 0 0	2¼	1¾ 2¼
1000	West Roskear, t, s-l, bl, c, Camborne.	5 10 0	—	
10000	West Vor,* t, c, ars, Breage	1 0 0	—	
3000	West Wheal Peevor, t, Redruth	0 10 0	3	2¼ 3
6000	Wheal Agar, c, Illogan	12 10 0	4½	4 4½
512	Wheal Basset, c, Illogan‡	33 2 6	5½	5 5½
6000	Wheal Coates, t, St. Agnes	2 0 0	—	
2335	Wheal Comfort, c, Gwennap	1 7 0	—	
6000	Wheal Crebor, c, Tavistock	4 4 6		⅛ ¼
5179	Wheal Grenville, c, Camborne	4 1 6	3¼	2⅛ 3
12000	Wn. Mary Hutchings,* t, Plympton‡	1 18 6	2⅛	2 2½
12000	Wheal Russell, c, Tavistock	2 1 6	—	
4096	Wheal Uny, t, c, Redruth	14 8 6	¾	⅜ ½
2324	White Cliff,* l, Llanrwst	5 0 0	—	
5000	Wicklow, s, sul, i, Wicklow	2 10 0	—	

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; sl, slate; s-l, silver-lead; t, tin; z, zinc.

* Limited Liability Companies; † quoted on the Stock Exchange; ‡ have paid dividends.

IRON AND COAL COMPANIES.

Shares.	Company.	Paid.	Prices	
£100	Abbot, John, and Co. [L.]	£75 0 0	27	26
15	Albion Steel and Wire Co. [L.]	14 0 0		—
5	Alltami Colliery Co. [L.]	5 0 0	3	3¼
100	Ashbury Co. [L.]	90 0 0	55	50
3	Bagnall, John, and Sons [L.]	3 0 0	⅝	⅝
10	Benhar Coal Co. [L.]	10 0 0	5¼	5⅛
50	Bilbao Iron Ore Co. [L.]	50 0 0	18	20
10	Bilson & Crump Meadow Coll. Co. [L.]	10 0 0		—
4	Blaen Cwmbach Coal Co. [L.]	4 0 0		—
50	Blaenavon Iron and Steel Co. [L.]	50 0 0		—
100	Bolckow, Vaughan, and Co. [L.]...A	50 0 0	2	2⅛
50	Bowling Iron Co. [L.]	50 0 0		—
50	Britannia Ironworks [L.]	25 0 0		—
50	Brown, Bailey, and Dixon [L.]	40 0 0	7	6¼
100	Brown, John, and Co. [L.]	70 0 0	15	14
3	Cakemore, Causeway Green, L. Holt	3 0 0	2	3¼
100	Cammell and Co. [L.]	80 0 0	13	12
20	Cannock and Huntington Coal [L.]	10 0 0	9	8¼
10	Cardiff & Swansea St. Coal Co. [L.]	9 0 0	⅝	⅝
10	Cardigan Steel and Wire Co. [L.]	8 10 0		—
10	Central Swedish Iron and Steel [L.]	10 0 0	1	2
5	Chapel House Colliery	5 0 0	2⅛	3⅛
50	Charlton Iron Co. [L.]	50 0 0	8	10
50	Chatterley Iron Co. [L.]	45 0 0	40	38
10	Chillington Iron Co. [L.]	10 0 0	2⅛	3
10	Consett Iron Co. [L.]	7 10 0	8	9
1	Consett Spanish Ore [L.]	1 0 0	¼	⅛
50	Cooke, William, and Co. [L.]	40 0 0	42	40
20	Darlington Iron Co. [L.]	12 10 0	⅝	¼
50	Davy Brothers [L.]	22 10 0	1	2
5	Diamond Fuel Co. [L.]	5 0 0		—
23	Ebbw Vale Co. [L.]	20 0 0	16	14
100	Fox, Samuel, and Co. [L.]	80 0 0	25	30
10	General Mining Ass. [L.] (£1 returned)	9 0 0	2⅛	3⅛
20	Great Western Coal Co. [L.]	17 0 0		—
2	Gwyngwillim Colliery Co. [L.]	2 0 0		—
15	Hopkins, Gilkes, and Co. [L.]	11 0 0	11	10
50	Knowles, Andrew, and Sons [L.]	17 0 0	6	5
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0	3	1
5	Littledean Woodside Coll. Co. [L.]	5 0 0		—
50	Llynvi, Ogmore, & Tondu Co. [L.]	50 0 0	5	5¼
10	Lydney and Wigpool Iron Ore [L.]	8 5 0	11	10
10	Marbella Iron Ore Co. [L.]	10 0 0	7⅛	7
5	Mersey Steel and Iron Co. [L.]	5 0 0		—
10	Midland Iron Co. [L.]	5 0 0	1⅛	1
5	Mold Argoed Colliery Co. [L.]	5 0 0	3	2⅛
10	Monkland Iron and Coal Co. [L.]	10 0 0	9	8¼
4	Mwyndy Iron Ore [L.]	3 15 0	2¼	2
100	Nant-y-Glo and Blaina (8 p. c. pref.)	100 0 0	18	20
3	Nerbudda Coal and Iron [L. & Red.]	2 0 0	1	1¼
20	New Sharlston Collieries [L.] Pref.	20 0 0	17	16
10	Newport Abercarn Coal Co. [L.]	10 0 0	4	4¼
10	Northmptn. Coal, Iron & Wagon [L.]	8 0 0		—
10	Northfield Iron Co. [L.]	8 10 0	¼	7¼
1	Norton Green Coal Co. [L.]	1 0 0		—
35	Palmer's Shipbuilding and Iron [L.]	25 0 0	14	13
100	Parkgate Iron Co. [L.]	65 0 0	21	19
20	Patent Nut and Bolt Co. [L.]	14 0 0	6	6¼
20	Patent Shaft and Axletree [L.]	10 0 0	1	¼
20	Pelsall Coal and Iron [L.]	17 10 0	14	13
50	Phœnix Bessemer Co. [L.]	40 0 0		—
50	Rhymney Iron Co. [L.]	50 0 0	16¼	17¼
10	Sandwell Park Colliery Co. [L.]	10 0 0	13	14
10	Ditto New	5 0 0	4	4¼
100	Shotts Iron Co. [L.]	100 0 0	86	88
100	Sheepbridge Iron and Coal [L.]	55 0 0	31	30
50	Silkstone & Dodworth Cl. & Iron [L.]	33 0 0	28	27
20	Skerne Ironworks [L.]	20 0 0	16½	16
50	Somorrostro Iron Co. [L.]	50 0 0		—
25	South Wales Coal Co. [L.]	21 0 0	6¼	7¼
100	Staveley Iron and Coal Co. [L.]	60 0 0	3	4
100	Ditto ditto New	10 0 0	1	1¼
10	Swansea Valley Steam Coll. Co. [L.]	6 0 0		
100	Thames Iron Company	100 0 0		—
50	Tredegar Iron and Coal Co. [L.]	20 0 0	11	10
25	Ditto B. shares	25 0 0	18	20
20	Ulverston Mining Co. [L.]	12 0 0	5	3
10	Vancouver Coal [L.]	6 0 0	3½	2¼
100	Vickers, Sons, & Co. [L.]	100 0 0	10	12
50	Welsh Ironworks Co. [L.]	50 0 0		—
25	W. Cumberland I. and Steel [L.]	20 0 0	12	11¼
10	West Mostyn Coal [L.] (12 p.c. pref.)	5 0 0		—
5	West Swansea Colliery Co. [L.]	5 0 0		—
10	Whitehaven Iron Co. [L.]	10 0 0		—
100	Wigan and Whiston Coal Co. [L.]	70 0 0		—
100	Wigan Coal and Iron Co. [L.]	75 0 0		—

WAGON COMPANIES.

10	Birmingham Wagon Co. [L.]	10 0 0	15¼	15½
10	Ditto, 2nd issue	4 0 0	1¾	2
10	Ditto, pref., 6 per cent.	10 0 0	11¾	12
20	British Wagon Co. [L.]	10 0 0	1⅛	1
10	Gloucester [L.]	10 0 0	8	8
10	Ditto, 5th issue	5 0 0	1¼	1
10	Met. Rail. Car. and Wagon Co. [L.]	5 0 0	1¼	2
5	Ditto, pref., 6 per cent.	2 0 0	½	
10	Midland	10 0 0	3	3
20	North Central Wagon Co.	20 0 0	21	22
5	Rail. Car. [L.] (Oldbury)	5 0 0	1	
5	Ditto, pref., 6 per cent.	5 0 0	½	
20	Sheffield Wagon Co. [L.]	15 0 0	1½	2
10	Yorkshire Wagon Co. [L.]	10 0 0	3⅛	4

TELEGRAPH COMPANIES.

"St."	Anglo-American	100 0 0	59¼	60
10	Brazilian Submarine	10 0 0	6⅛	6
20	Direct United States Cable	20 0 0	12⅛	12
10	Eastern	10 0 0	7⅛	7
10	East. Exten., Australia and China	10 0 0	7	7
10	Great Northern	10 0 0	7⅛	8
25	Indo-European	25 0 0	19½	20½
10	Mediterranean Extension	10 0 0	2¼	3
8	Reuters	8 0 0	9½	10½
Stk.	Submarine	100 0 0	215	220
10	West India and Panama	10 0 0	1¾	2
20	Western and Brazilian	20 0 0	2¼	
$1000	Western Union, 7 per cent. Mort. Bonds	$1000	114	118

MISCELLANEOUS.

Stk.	Atlantic and Great Western Leased Lines, Rental Trust	100 0 0	38	42
25	Australian Agricultural	21 10 0	78	80
25	Austral. Mort. Land and Finance [L.]	5 0 0	4¾	5
10	Avonside Engine [L.]	7 0 0	7	5
Stk.	Baltimore and Ohio, 6 per cent.	100 0 0	105	107
10	Brighton Aquarium [L.]	10 0 0	7	8
Stk.	Cent. of New Jersey Con. Mort.	100 0 0		—
Stk.	Cent. Pacific of Calif., 1st Mort. 6 p.c.	100 0 0	110¾	111
25	City of London Real Property [L.]	12 0 0	2	
5	Diamond Rock Boring	4 10 0	3¾	
15	English and Foreign Credit	8 0 0		—
16	Fore Street Warehouse [L.]	14 0 0	9	10
15	Foster, Porter, and Co. [L.]	10 10 0	19	20
5	Gen. Phos. & Chem. Works Co. [L.]	5 0 0		—
1	Greenhill [L.]	1 0 0		—
5	Kit Hill Tunnel [L.]	1 0 0		—
17	Hudson's Bay Company	17 0 0	10⅛	11
10	Huntington Copper and Sul. Co.	9 0 0		
Stk.	Illinois Central, $100 shares	100 0 0	79	81
Stk.	Illinois & St. Louis Bridge, 1st Mort.	100 0 0	75	
Stk.	Ditto, 2nd Mort., 7 per cent.	100 0 0	33	
Stk.	Illinois Cent. Sinking Fund, 5 p. cent.	100 0 0	99	101
Stk.	Ditto, 6 per cent.	100 0 0	106	108
7½	Imperial Credit [L.]	7 10 0	7⅜	
—	Ditto, Surplus Certificate	—	6¼	
Stk.	Lehigh Val. Con. Mort., A, 6. p. cent.	100 0 0	103	105
10	Milner's Safe [L.]	10 0 0	8½	9
25	National Discount [L.]	5 0 0	8¾	
Stk.	N. Cent. Rail. Con. Mort., 6 per cent.	10 0 0	84	
10	Pawson and Co. [L.]	8 0 0	½	
50	Peninsular and Oriental Steam	50 0 0	41	43
Stk.	Pennsyl. Gen. Mort. 6 p. cent., 1910.	100 0 0	109	110
Stk.	Ditto, Con. Sink. Fund, 6 p. ct., 1905	100 0 0	99	100
Stk.	Scottish Aust. Investment Company.	100 0 0	180	190
Stk.	Ditto, 6 per cent. Preference	100 0 0	123	126
10	Silber Light (ord. sh.)	10 0 0		—
20	Suez Canal shares	20 0 0		—
12	Telegraph Construc. & Mainte. [L.]	12 0 0	29¼	
5	Ditto, Second Bonus Three per Cents	5 0 0	2⅛	
10	Tharsis Sulphur and Copper Co.	10 0 0	22¼	23
Stk.	Union Pacific Land Grant, 1st Mort.	100 0 0	107	109
Stk.	Union Pacific Railway, 1st Mort.	100 0 0	110	112
5	West of England Compressed Peat	5 0 0		—
5	Ditto	2 0 0		—

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